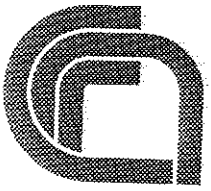

Consiglio Nazionale delle Ricerche

A performance comparison among IBM VM-CMS main-frame, IBM SP1, and IBM SP2.

Linear algebra problems.

Renzo Beltrame

CNUCE C95-54

A performance comparison among IBM VM-CMS main-frame, IBM SP1, and IBM SP2. Linear algebra problems

Renzo Beltrame[1]

In the past year our computer service migrated from the main-frame IBM to the IBM SP1. A further migration from SP1 to SP2 was made in the spring 1995.

We present here a brief comparison of the performance of the three IBM systems, main-frame, SP1, and SP2. The comparison was made to offer to our users a first idea of the performance they can expect after the migration on the new architecture. Therefore the reported data concern a multiusers environment with a heavy load on each node, which is the common operational situation of our computer service.

We choose for the comparison three problems of the linear algebra: the matrix product, the solution of a system of linear equations, and the calculation of eigenvalues and eigenvectors of a square matrix.

The performance both of SP1 and SP2 have a certain interest, because the RISC 6000 that constitute the nodes of this architecture has a very common configuration. Therefore the data can be useful also for a single workstation.

We add the analogous data for SP2, and for this last architecture we give the data of scalable multiprocessor routines too by using the Scalable Linear Algebra PACKage (ScaLAPACK).

The comparison was made by using the APL2 functions and operators that are implemented to solve linear algebra problems, because they are implemented as primitive or plugged functions.

Then we add the results of the timing routines of the Linear Algebra PACKage (LAPACK) library for the solution of the same linear algebra problems on SP1 and SP2.

Further data on the performance of the multiprocessor facility were obtained by using the ScaLAPACK timing routines on SP2. In particular the PUMMA routine performance is reported, and a comparison is made among the data obtained with different Message Passing Library (MPL) options.

APL2 has usually a good implementation of the linear algebra. Furthermore it is a good candidate for quickly prototyping the solution of many numerical problems. LAPACK is a good and well known library for linear algebra problems. Both in SP1, and in SP2, we generated it by using the Basic Linear Algebra Subprograms (BLAS) supplied with the system. Therefore the test has a reasonable reliability.

Nevertheless we did not repeat the test to evaluate the average value of the times and the variance of the distribution sample, because we are not doing a real performance evaluation. The small times we report here for completeness sake, have thus a low significance.

Some data are added, which refer to enhanced nodes of SP2.

National Research Council of Italy – CNUCE Institute – Via Santa Maria 36, I-56126 Pisa – *phone*: +39 50 593288 – *fax*: +39 50 904052
email: r.beltrame@cnuce.cnr.it

Hardware and Software configuration

The hardware and software configurations were the following ones.

The main-frame was an IBM ES/9000 9121/440, with 2 processors, and vector feature.
The shared memory for the VM/ESA is 48 MB; and the address space of each processor is 2 GB.
We used APL2 2.2.00.

The SP1 was an IBM 9076-102 (SP1), 8 nodes at 66 MHz Thin.
Every node has 64 MB of RAM, and 1 GB hard-disk.
We used APL2/6000 Ver. 1.2.0, and LAPACK Version 1.1.
The compiler was the IBM XL Fortran for AIX 3.2.

The SP2 was an IBM 9076-302 (SP2), 8 nodes at 67 MHz Thin.
Every node has 64 MB of RAM, and 2 GB hard-disk.
We used APL2/6000 Ver. 1.2.0, LAPACK Version 2.0, and ScaLAPACK Version 1.1.
The compiler was the IBM XL Fortran for AIX 3.2.

The enhanced node of the SP2 (node 1 , and 2) have the following configuration:
IBM 9076-302 (SP2) 67 MHz Thin2.
Every node has 512MB of RAM, and 2 GB hard-disk.
We used APL2/6000 Ver. 1.2.0, LAPACK Version 2.0, and ScaLAPACK Version 1.1.
The compiler was the IBM XL Fortran for AIX 3.2.
The SP2 performance on these nodes (single node programs only) is reported below with the indication "enhanced node".

The UNIX operating system on SP1 and SP2 was in all the cases the AIX 3.2.5.

APL2 Test

For these tests we generate rectangular matrices of random numbers by using the primitive APL2 function 'roll', which generate a random integer in the range of its argument. Iterated calls of this function generate a pseudo random sequence of numbers.

The numbers were chosen in the range of 1 to the product nm of the matrix rows and columns, then they were divided by 0.1000000001 to obtain floating point numbers. In APL2 floating point arithmetic is double precision.

We took the computer times by using the suitable APL2 system function, and the times refer to the linear algebra operation execution only. All the times are given in milliseconds.

Product of two matrices

The first set of data (see Tables 1-3) concerns the product of two matrices, which have n rows, and m columns. In APL2 we realize this operation by means of primitive functions and operators. In particular, we assigned to a variable the transpose of the second matrix, and the time is so excluded of doing the transpose operation.

In the Tables n labels the rows, and m labels the columns; both matrices were prepared with the suitable number of rows and columns. The time of the operation is given in milliseconds.

In Table 1 we have the data obtained on the main-frame IBM when the vector feature was disabled. As we expect, they are very poor.

	50	100	150	200	250	300	350	400	450
50	31	66	119	257	363	459	562	664	757
100	132	292	453	636	833	1040	1267	1511	1804
150	305	638	973	1283	1615	1987	2413	3340	4954
200	568	1114	1648	2195	2811	3584	4843	6230	7703
250	887	1724	2574	3479	4611	5985	7508	9358	13170
300	1279	2479	3749	5106	6692	8471	10138	13913	18898
350	1731	3376	5157	7071	9222	11555	15497	21601	30531
400	2258	4398	6763	9216	11624	14974	20848	31120	44399
450	2841	5600	8561	11737	15353	20911	33527	48911	63549

Table 1: APL2 on VM-CMS without vector feature. Product of two rectangular matrices

The matrix of the times is highly not symmetric, because the elements, which belong to either the same row or the same column, are stored in contiguous locations of memory. Therefore architectural facts strongly influence the performance, like strategies of memory access, piping, caching, buffering, etc.

In our case the product of two matrices 50x450 requires 3.753 times the time required by two 450x50 matrices.

In Table 2 we have the data obtained on the main-frame IBM when the vector feature was enabled. As we can see, we have a good performance.

Here too the matrix of the performance times is highly not symmetric; and the product of two matrices 50x450 requires 6.8 times the time required by two 450x50 matrices. This figure reduces to 1.13 among 400x450 and 450x400 matrices.

	50	100	150	200	250	300	350	400	450
50	4	8	14	27	35	43	48	55	62
100	12	44	67	88	110	135	156	177	200
150	31	93	139	186	239	282	328	371	424
200	80	159	236	316	396	478	555	632	707
250	124	244	363	489	610	737	854	972	1085
300	187	383	583	777	977	1166	1354	1550	1756
350	256	520	770	1031	1286	1538	1807	2080	2331
400	322	648	975	1310	1630	1967	2291	2621	2992
450	422	836	1260	1681	2082	2477	2932	3375	3787

Table 2: APL2 on VM-CMS with vector feature. Product of two rectangular matrices

In Table 3 we have the data obtained on the SP1, and the performance is quite similar to the main-frame performance when the vector feature is enabled.

Here again the matrix of the performance times is higly not symmetric; and the product of two matrices 50x450 requires 10.7 times the time required by two 450x50 matrices. This figure reduces to 1.135 among 400x450 and 450x400 matrices.

	50	100	150	200	250	300	350	400	450
50	6	17	23	30	40	48	58	64	72
100	32	62	93	121	150	180	215	250	290
150	70	140	206	284	350	430	480	556	630
200	130	250	380	504	630	746	860	980	1100
250	215	410	590	782	980	1141	1340	1530	1690
300	320	580	850	1130	1380	1650	1921	2180	2470
350	430	800	1130	1550	1930	2280	2650	3010	3400
400	602	1074	1550	2050	2520	3000	3480	3960	4430
450	770	1370	1970	2600	3190	3790	4420	5030	5720

Table 3: APL2 on SP1. Product of two rectangular matrices

	50	100	150	200	250	300	350	400	450
50	0	10	17	31	30	43	50	60	68
100	20	60	80	110	140	170	210	220	260
150	60	150	220	260	320	380	430	480	530
200	130	210	330	430	530	660	750	860	980
250	170	350	510	660	870	990	1180	1300	1500
300	270	480	710	920	1210	1440	1690	1940	2180
350	370	680	980	1300	1640	1990	2510	2610	2980
400	490	890	1340	1790	2190	2610	3020	3440	3790
450	560	1190	1730	2360	2830	3470	3830	4360	4990

Table 4: APL2 on SP2. Product of two rectangular matrices

	50	100	150	200	250	300	350	400	450
50	4	7	12	19	25	30	38	45	50
100	17	34	64	80	120	120	150	170	210
150	30	80	140	190	230	290	320	370	420
200	60	190	260	340	420	480	580	640	780
250	130	240	400	500	630	770	910	1010	1090
300	180	340	560	710	920	1060	1300	1480	1680
350	280	530	750	960	1220	1510	1770	2100	2360
400	330	670	1060	1340	1650	1970	2370	2620	2950
450	470	830	1340	1660	2160	2530	2900	3380	3780

Table 5: APL2 on SP2. Product of two rectangular matrices (enhanced node)

In Table 4 we have the data obtained on the SP2, and the performance is quite similar to the mainframe performance when the vector feature is enabled.

Here again the matrix of the times is highly not symmetric; and the product of two matrices 50x450 requires 10.7 times the time required by two 450x50 matrices. This figure reduces to 1.135 among 400x450 and 450x400 matrices.

Finally in Table 5 we report the data of the enhanced node of the SP2.

The asymmetry is better visualized in the following series of plotting, where we used the same scale to facilitate a comparison.

In Figure 1 we plot the data of Table 2, and each line refers to a fixed number of columns.

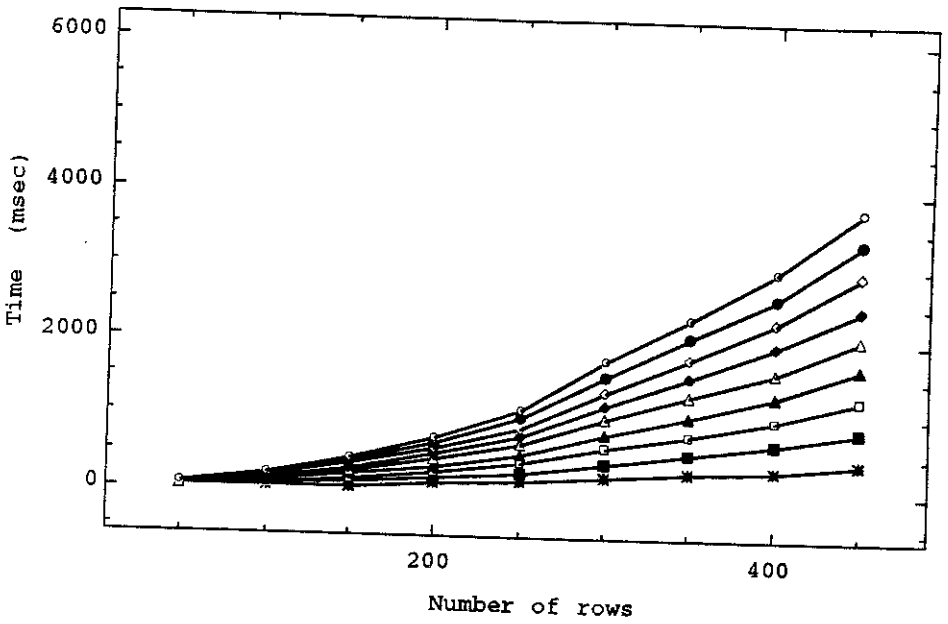

Figure 1. VM-CMS data (each line refers to a fixed number of columns)

In Figure 2 we plot the data of Table 2, but each line now refers to a fixed number of rows.

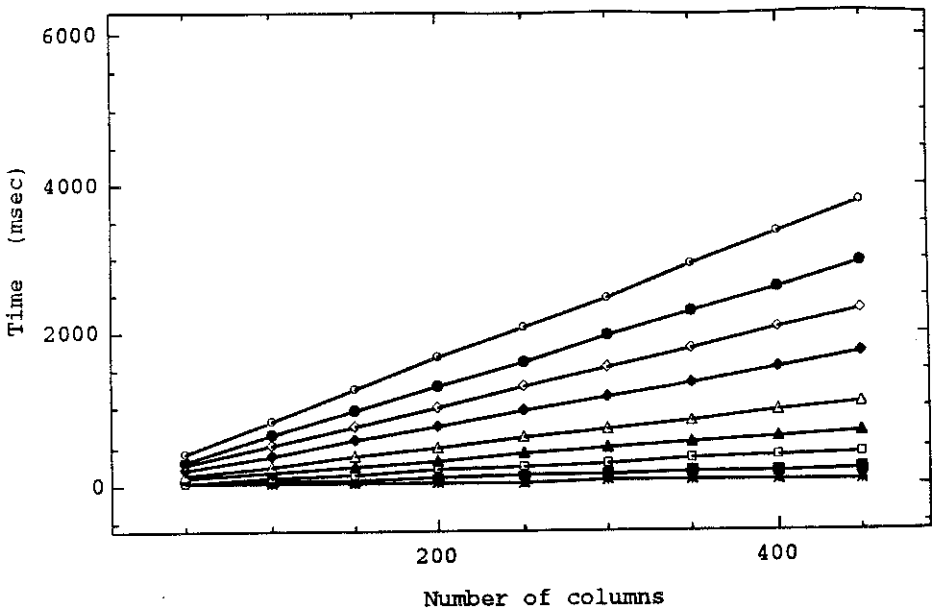

Figure 2. VM-CMS data (each line refers to a fixed number of rows)

In Figure 3 we plot the data of Table 3, and each line refers to a fixed number of columns.

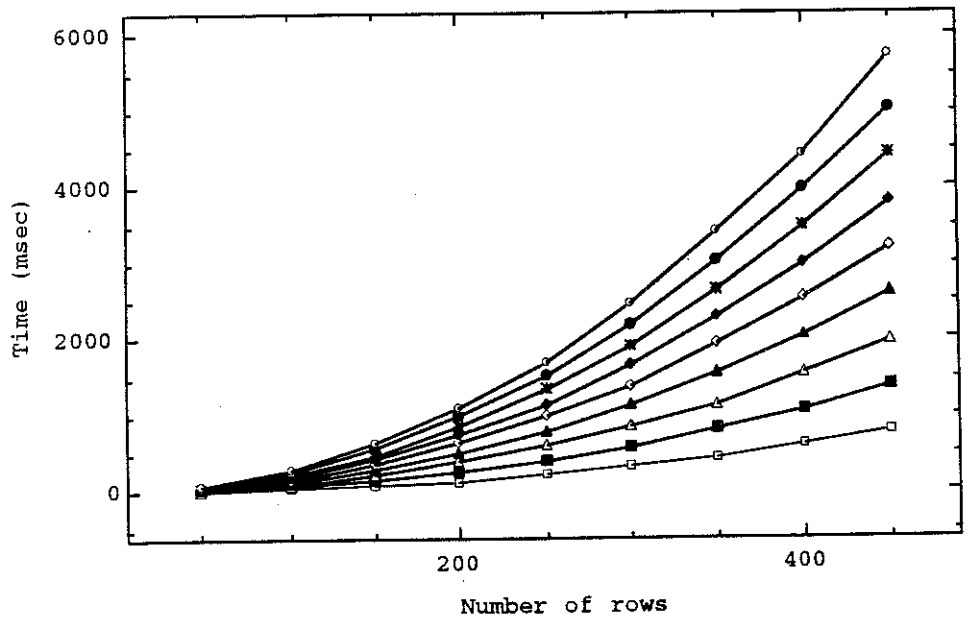

Figure 3. SP1 data (each line refers to a fixed number of columns)

In Figure 4 we plot the data of Table 3, but each line now refers to a fixed number of rows.

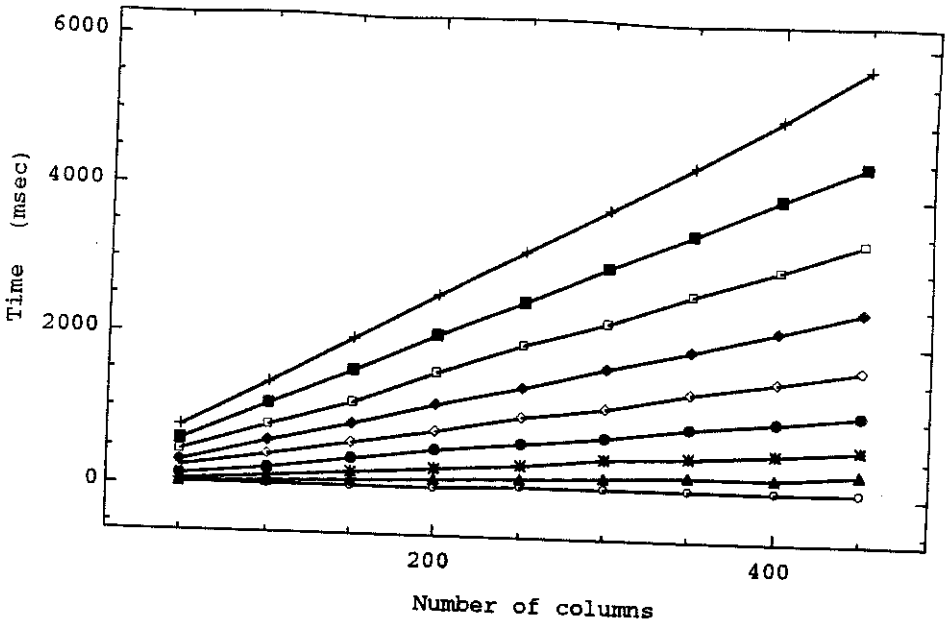

Figure 4. SP1 data (each line refers to a fixed number of rows)

In Figure 5 we plot the data of Table 4, and each line refers to a fixed number of columns.

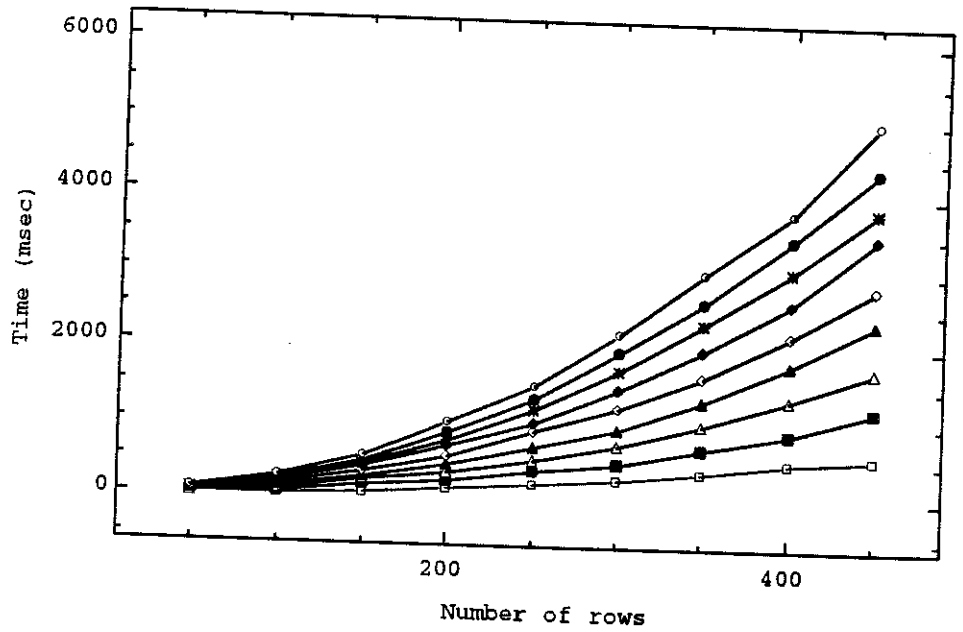

Figure 5. SP2 data (each line refers to a fixed number of columns)

In Figure 6 we plot the data of Table 4, but each line now refers to a fixed number of rows.

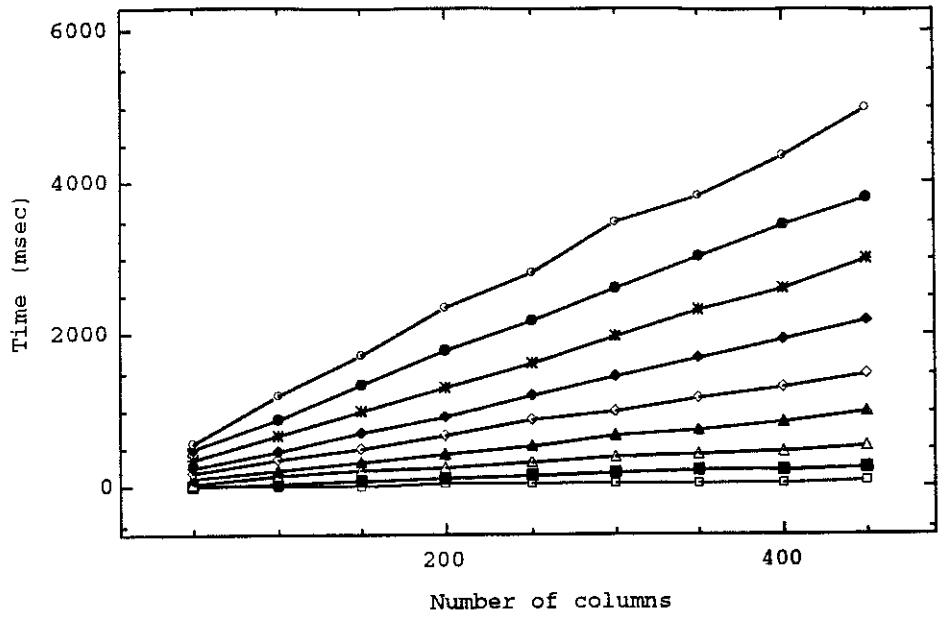

Figure 6. SP2 data (each line refers to a fixed number of rows)

System of linear equations

The second set of data (see Tables 6-9) concerns the solution of a system of linear equations; the system has n linear equations, and m unknowns. APL2 implements this operation as a primitive function, when the matrix of coefficients is rectangular – that is we have more equations than unknowns – the APL2 uses a least squaresapproximation.

In the Tables n labels the rows, and m labels the columns. The time of the operation is given in milliseconds.

In Table 6 we have the data obtained on the main-frame IBM, the vector feature was enabled.

	50	100	150	200	250	300	350	400	450
50	49								
100	118	393							
150	199	830	1483						
200	467	1435	2619	3167					
250	827	2263	4005	4485	6951				
300	1082	3177	5939	7421	12077	15531			
350	1344	4202	8545	12494	18422	24703	30388		
400	1543	5176	10959	17481	25737	35838	44370	53830	
450	1801	6523	13890	22949	[illegible]998	46267	59373	75458	94106

Table 6: APL2 on VM-CMS, with vector f[illegible]ture. Resolution of a linear system

In Table 7 we have the data obtained on the SP1, and we immediately note a great difference among the square and rectangular matrix cases.

The performance is very good when the number of equations is equal to the number of unknowns; in particular it is better than the vector feature one. With rectangular matrices the performance is very poor, and significantly worst than the vector feature one.

	50	100	150	200	250	300	350	400	450
50	7								
100	910	40							
150	1420	5350	150						
200	1830	7350	16880	360					
250	2440	9290	20970	37350	750				
300	3060	11480	25950	47050	73480	1200			
350	3360	13550	30930	56070	89060	133280	1910		
400	3950	15590	35140	64480	104510	152840	209570	2870	
450	4490	17800	40280	73790	117000	171660	240550	314960	3990

Table 7: APL2 on SP1. Resolution of a linear system

In Table 8 we have the data obtained on the SP2, and we immediately note again the great difference among the square and rectangular matrix cases.

The performance is very good when the number of equations is equal to the number of unknowns; in particular it is better than the vector feature one. With rectangular matrices the performance is still very poor, and significantly worst than the vector feature one.

The gain in performance of the SP2 is better for low number of columns, and this fact probably depends on the limited amount of the cash memory.

In Table 9 we report the data of the enhanced node.

	50	100	150	200	250	300	350	400	450
50	8								
100	589	34							
150	886	3536	114						
200	1205	4708	10550	260					
250	1526	5888	13250	23413	517				
300	1848	7073	15807	28070	44360	877			
350	2183	8370	18460	33022	51950	74300	1378		
400	2503	9510	21522	38262	63000	85520	116460	2030	
450	2835	10655	24520	42980	67360	95810	131586	181460	2950

Table 8: APL2 on SP2. Resolution of a linear system

	50	100	150	200	250	300	350	400	450
50									
100	590	30							
150	880	3540	90						
200	1230	4690	10610	220					

Table 9: APL2 on SP2. Resolution of a linear system (enhanced node)

	50	100	150	200	250	300	350	400	450
250	1510	5970	12973	23260	450				
300	1740	7196	15550	28170	43590	830			
350	2090	8530	18310	33080	50253	73220	1400		
400	2560	9730	21510	37070	57874	84620	113670	1830	
450	2770	10980	24000	41740	66315	96630	129140	167420	2590

Table 9: APL2 on SP2. Resolution of a linear system (enhanced node)

For these sets of data too we will plot the results in the Figures 7-9.

In Figure 7 we plot the data of Table 6; in Figure 8 we plot the data of Table 7; and in Figure 9 we plot the data of Table 8.

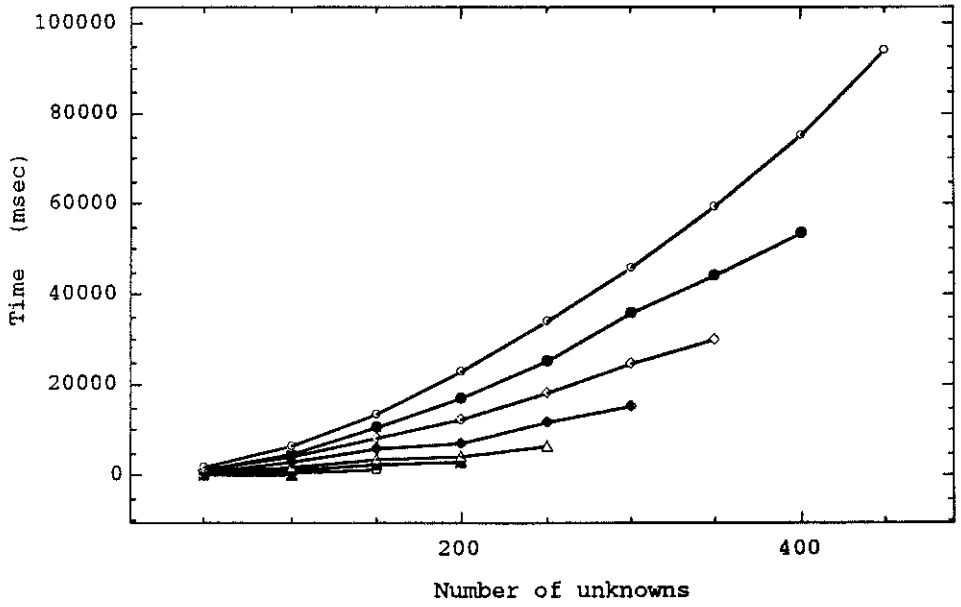

Figure 7. VM data (each line refers to a fixed number of equations)

Roughly speaking the performance shows a relation 1:3:2 among VM with vector feature, SP1, and SP2; as we can see from the ordinate scale.

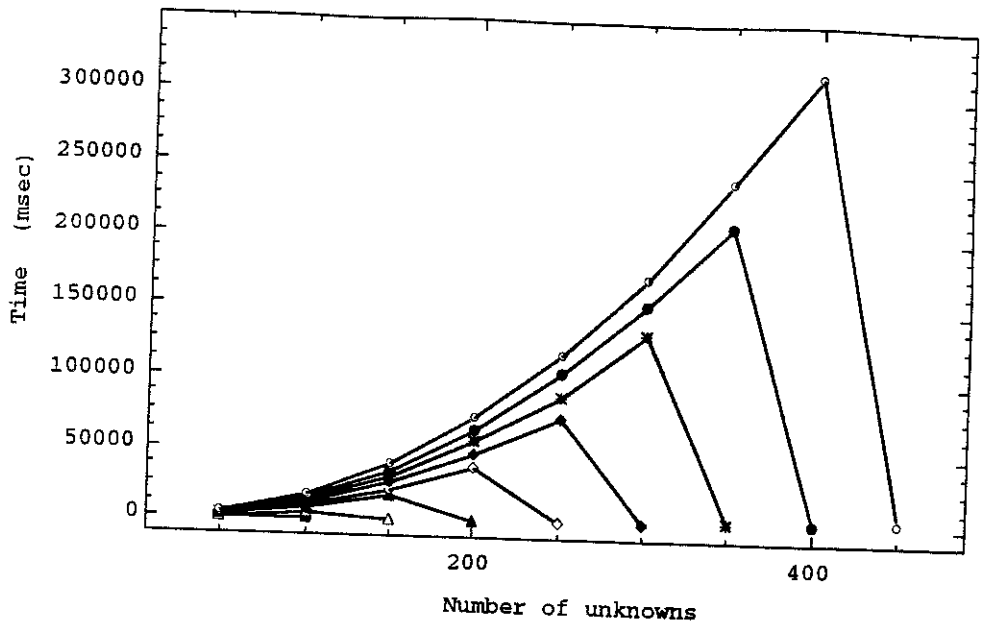

Figure 8. SP1 data (each line refers to a fixed number of equations)

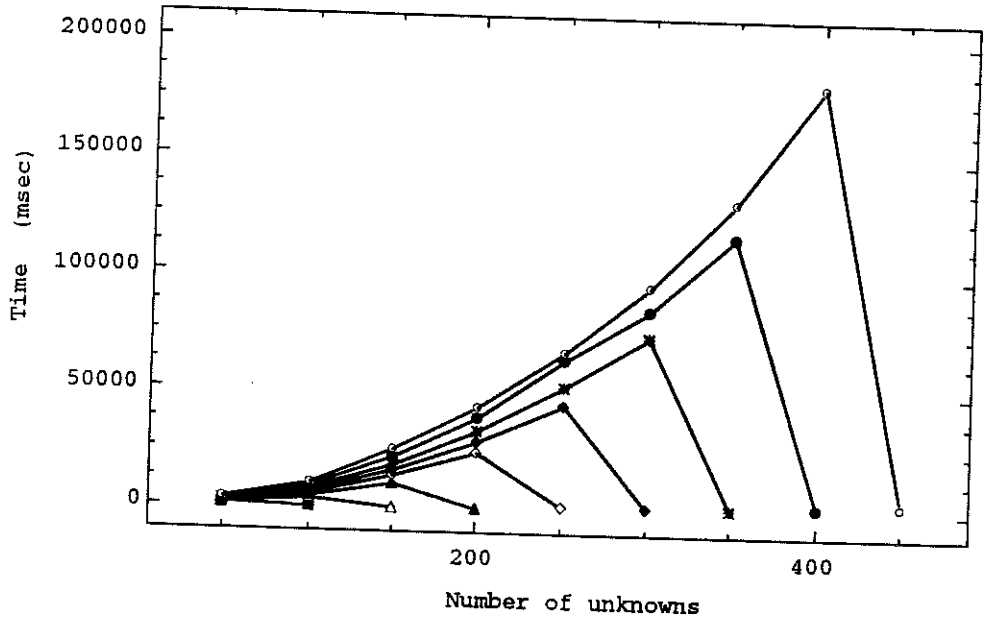

Figure 9. SP2 data (each line refers to a fixed number of equations)

Finally we give in Table 10 a comparison between data which concern the use of the supplied function EIGEN to evaluate eigenvalues and eigenvectors of a square real matrix. The first column refers to VM/CMS with the vector feature, and the second one refers to SP2.

The time is in milliseconds and the data refer to square random matrices from 50 to 200 rows and columns.

	50	100	150	200
VM	11770	66967	193050	400199
SP2	27030	187130	649030	1810950
SP2-e	21340	140230	459840	1197170

Table 10: APL2 on VM and SP2. Eigenvalues and eigenvectors

The difference is here very evident. The time is higher in SP2 by a factor which spans from 2.3 to 4.52, and this factor increases when the dimension of the matrix increases. The performance is better on the enhanced node, SP2-e row, but in every case it is worst than on the VM with the vector feature.

LAPACK implementation

On SP1 the Linear Algebra PACKage (LAPACK)[2] routines were compiled with XL Fortran for AIX 3.2, the options -O -u were used, and the BLAS routines were linked, which are supplied with the operating system.

On SP2 the LAPACK routines were compiled with XL Fortran for AIX 3.2.5, the options -O3 -u were used, and the same BLAS routines were linked, which are supplied with the operating system.

The data that concern LAPACK are obtained by the timing routines, which are distributed with the package. The system routine ETIME supplied with the Fortran compiler was used in both cases.

The test was performed in a multiuser environment with a heavy load on the node.

The performance data are reported in appendices. It is not easy to summarize the parameters of the timing programs. The reader should refer to the Section 7, "More About Timing", of the LAPACK WN41 cited above. The reader can find this section, as enclosure, at the end of the Report.

[2] E. Anderson, J.J. Dongarra, L.S. Ostrouchov, *Installation Guide for LAPACK*, LAPACK WN 41, March 1993.

ScaLAPACK implementation

We have the performance data only for the SP2. On this machine the Scalable Linear Algebra PACKage (ScaLAPACK)[3] routines were compiled with the options -O3 -u, the same BLAS routines were linked, which are supplied with the operating system, and IBM Message Passing Library (MPL) was used as intercommunication system.

The data that concern PUMMA are obtained by the timing routines, which are distributed with the package. The system routine ETIME supplied with the Fortran compiler was used for the call by Fortran routines, otherwise the standard timing routine was used, which is supplied with the includes of the C compiler.

In Table 11 we report the performance data only for the Parallel Universal Matrix Multiplication Algorithms (PUMMA)[4]. Furthermore we report the data for a very limited set of data.

They refer to the operation:

$$\alpha(AB) + \beta C$$

where A, B, and C are square matrices 1200x1200 of double precision real numbers, and α, β are two double precision real scalars.

P and Q define the array of processors used by the algorithm. Our data refer to 8 nodes, 1 process per node configuration. We can see that the configuration 4x2 gives better results than the 2x4 one; but the differences are rather small. MB, NB, KB define the block factor used in the algorithm. For more details one can consult the paper cited in the above note.

We report three sets of data; they refer to different configurations and protocols of the network that connects the 8 nodes.

The set marked euilib=us refers to User Space (US) CSS library implementation to use for communication in IBM AIX Parallel Operating Environment (POE). In this case high-performance switch feature is used, and it is dedicated to a single user. The nodes also were dedicated to the test, and clearly we have in this case the best performance.

The set marked euilib=css0/ip refers to IP CSS library implementation to use for communication in POE. In this case high-performance switch feature is used too, but it is shared among different users. Furthermore the nodes were not dedicated and we had a heavy load on each node.

The set marked euilib=en0/ip refers to Ethernet IP library implementation to use for communication in POE. In this case an Ethernet connection is used, and it is shared among different users. Here too the nodes were not dedicated and we had a heavy load on each node.

We shall outline that performance data, which refer to the Parallel Operating Environment, are strongly dependent on the load on each node. Hence they have poor meaning for our users, which usually shall work in a multiuser environment.

---

[3] J. Choi, J.J. Dongarra, L.S. Ostrouchov, A. Petitet, R.C. Whaley and J. Demmel, I. Dhillon, K.Stanley, *Installation Guide for ScaLAPACK*, LAPACK WN, February 1995.

[4] J. Choi, J.J. Dongarra, D.K. Walker, *PUMMA: Parallel Universal Matrix Multiplication Algorithms on distributed memory concurrent computers*, ORNL/TM-12252, August 1993; J. Choi, J.J. Dongarra, A. Petitet, D.K. Walker, *PUMMA: Reference Manual (Version 2.0)*, ORNL/TM-12494, March 1994.

						euilib=us		euilib=css0/ip		euilib=en0/ip	
Time	MB	NB	KB	P	Q	Time	Mflop	Time	Mflop	Time	Mflop
WALL	20	20	20	2	4	6.91	500.49	70.18	49.24	49.67	69.57
CPU	20	20	20	2	4	6.71	515.05	5.43	636.46	9.88	349.80
WALL	40	40	40	2	4	7.08	488.14	207.94	16.62	46.70	74.00
CPU	40	40	40	2	4	7.08	488.14	8.89	388.75	10.77	320.89
WALL	60	60	60	2	4	6.59	524.79	114.73	30.12	46.85	73.76
CPU	60	60	60	2	4	6.56	526.83	6.12	564.71	10.56	327.27
WALL	80	80	80	2	4	7.36	469.26	135.25	25.55	46.63	74.12
CPU	80	80	80	2	4	7.36	469.57	7.57	456.54	9.94	347.69
WALL	120	120	120	2	4	8.57	403.29	208.13	16.61	51.84	66.66
CPU	120	120	120	2	4	8.53	405.16	9.15	377.70	10.44	331.03
WALL	240	240	240	2	4	11.32	305.43	139.56	24.76	55.23	62.57
CPU	240	240	240	2	4	11.29	306.11	9.53	362.64	12.53	275.82
WALL	20	20	20	4	2	6.45	536.15	145.22	23.80	46.16	74.86
CPU	20	20	20	4	2	6.44	536.65	8.97	385.28	9.87	350.15
WALL	40	40	40	4	2	7.01	493.32	476.95	7.25	48.69	70.98
CPU	40	40	40	4	2	7.01	493.01	20.47	168.83	10.23	337.83
WALL	60	60	60	4	2	6.48	532.96	112.29	30.78	50.48	68.46
CPU	60	60	60	4	2	6.45	535.81	6.42	538.32	10.33	334.56
WALL	80	80	80	4	2	7.63	452.95	137.78	25.08	50.08	69.01
CPU	80	80	80	4	2	7.38	468.29	7.37	468.93	10.66	324.20
WALL	120	120	120	4	2	8.47	408.23	146.96	23.52	55.47	62.31
CPU	120	120	120	4	2	8.44	409.48	10.28	336.19	11.17	309.40
WALL	240	240	240	4	2	11.32	305.37	193.89	17.82	55.81	61.92
CPU	240	240	240	4	2	11.28	306.38	10.30	335.53	12.41	278.49

Table 11: ScaLAPACK performance in matrices product on SP2 (PUMMA timing routine)

Appendix 1. Linear Algebra PACKage (LAPACK) timing data of the Linear Equation Routines.

The timing data refer to the Linear Equations Routines.
The Fortran ETIME routine was used in timing routines.
In the left column we report the data of SP1.
In the right column we report the related data of SP2.

```
LAPACK VERSION 1.1, released March 31, 1993

LAPACK timing, DOUBLE PRECISION square matrices

The following parameter values will be used:
   M:          50   100   200   300   400   500
   N:          50   100   200   300   400   500
   K:           1     2    16   100
   NB:          1    16    32    48    64
   NX:          0    48   128   128   128
   LDA:       513

The minimum time a subroutine will be timed =    .000 seconds

-------------------------------
>>>>>    Sample BLAS     <<<<<
-------------------------------

*** Speed of DGEMV  in megaflops ***
    with LDA =   513

       N    50     100     200     300     400     500

          25.3    33.5    34.1    33.2    34.1    34.2

*** Speed of DGEMM  in megaflops ***
    with LDA =   513

       N    50     100     200     300     400     500

            .0    66.7    88.9    96.4    92.1    94.3

-------------------------------
>>>>>    Timing data     <<<<<
-------------------------------

*** Speed of DGETRF in megaflops ***

       N    50     100     200     300     400     500
   NB
    1      8.2    13.2    17.1    18.7    19.4    20.4
   16       .0    33.1    44.3    49.9    57.5    60.3
   32       .0    33.1    48.3    49.9    53.9    58.2
   48       .0    33.1    40.9    49.9    52.6    57.0
   64      8.2    33.1    40.9    48.5    49.0    52.7

*** Speed of DGETRS in megaflops ***

       N    50     100     200     300     400     500
 NRHS
    1       .0      .0      .0      .0    32.0    50.0
    2       .0      .0    16.0    12.0    21.3    25.0
```

```
LAPACK VERSION 2.0, released September 30, 1994

LAPACK timing, DOUBLE PRECISION square matrices

The following parameter values will be used:
   M:          50   100   200   300   400   500
   N:          50   100   200   300   400   500
   K:           1     2    16   100
   NB:          1    16    32    48    64
   NX:          0    48   128   128   128
   LDA:       513

The minimum time a subroutine will be timed =    .000 seconds

-------------------------------
>>>>>    Sample BLAS     <<<<<
-------------------------------

*** Speed of DGEMV  in megaflops ***
    with LDA =   513

       N    50     100     200     300     400     500

          25.3    33.5    34.9    34.2    34.5    33.8

*** Speed of DGEMM  in megaflops ***
    with LDA =   513

       N    50     100     200     300     400     500

            .0   100.0   160.0   145.9   148.8   150.6

-------------------------------
>>>>>    Timing data     <<<<<
-------------------------------

*** Speed of DGETRF in megaflops ***

       N    50     100     200     300     400     500
   NB
    1       .0    16.5    19.7    19.3    19.6    19.9
   16       .0    66.2    75.9    89.8    94.6   104.0
   32       .0    66.2    75.9    85.5    90.6    96.8
   48       .0    33.1    59.0    74.8    77.4    88.5
   64      8.2    33.1    48.3    64.1    74.7    83.2

*** Speed of DGETRS in megaflops ***

       N    50     100     200     300     400     500
 NRHS
    1       .0      .0     8.0      .0    32.0    50.0
    2       .0     4.0      .0    35.9    32.0    33.3
```

16	.0	31.8	63.8	71.9	63.9	72.7
100	49.5	66.3	79.8	74.9	78.0	86.1

*** Speed of DGETRI in megaflops ***

N	50	100	200	300	400	500
NB						
1	16.4	26.5	30.4	30.4	29.5	31.4
16	16.4	44.1	70.8	71.8	70.4	76.0
32	16.4	66.2	88.6	74.8	78.1	80.8
48	16.4	44.1	75.9	78.1	81.9	82.0
64	16.4	44.1	66.4	78.1	86.9	82.8

*** Speed of DGTTRF in megaflops ***

N	50	100	200	300	400	500
	.0	.0	.0	.0	.0	.0

*** Speed of DGTTRS in megaflops ***

DGTTRS with TRANS = 'N'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
100	.0	.0	7.0	20.9	9.3	11.6

DGTTRS with TRANS = 'T'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	.0	.0
2	.0	.1	.0	.0	.0	.0
16	.0	.0	.0	3.3	.0	5.6
100	3.4	.0	13.9	10.5	14.0	11.6

*** Speed of DGTSV in megaflops ***

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
100	.0	7.0	7.0	7.0	7.0	8.8

*** Speed of DPOTRF in megaflops ***

DPOTRF with UPLO = 'U'

16	.0	.0	127.7	95.8	102.3	114.2
100	.0	99.5	114.0	128.4	127.8	128.1

*** Speed of DGETRI in megaflops ***

N	50	100	200	300	400	500
NB						
1	.0	33.1	35.4	34.2	33.3	33.6
16	.0	66.2	70.8	108.8	106.5	108.1
32	16.4	66.2	96.6	119.7	118.3	120.6
48	.0	132.4	106.3	128.3	121.7	125.1
64	.0	132.4	118.1	115.8	129.1	135.3

*** Speed of DGTTRF in megaflops ***

N	50	100	200	300	400	500
	.0	.0	.0	.0	.1	.0

*** Speed of DGTTRS in megaflops ***

DGTTRS with TRANS = 'N'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	2.2	.0	.0	.0
100	.0	6.9	13.9	7.0	9.3	17.5

DGTTRS with TRANS = 'T'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.7
16	.0	.0	.0	.0	.0	.0
100	3.4	6.9	13.9	10.5	14.0	17.5

*** Speed of DGTSV in megaflops ***

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.9
16	.0	.0	2.3	.0	.0	.0
100	.0	.0	14.0	10.5	14.0	17.6

*** Speed of DPOTRF in megaflops ***

DPOTRF with UPLO = 'U'

N / NB	50	100	200	300	400	500
1	.0	16.9	14.9	14.4	15.9	16.8
16	.0	33.8	67.2	69.6	76.5	85.3
32	.0	33.8	67.2	100.5	85.7	85.3
48	.0	33.8	53.7	60.3	82.4	81.9
64	.0	33.8	53.7	75.4	76.5	88.9

DPOTRF with UPLO = 'L'

N / NB	50	100	200	300	400	500
1	4.3	16.9	16.8	23.8	23.5	25.5
16	.0	33.8	53.7	64.6	71.4	73.3
32	.0	33.8	53.7	69.6	76.5	78.9
48	4.3	33.8	53.7	82.2	85.7	81.9
64	4.3	33.8	67.2	82.2	76.5	74.6

*** Speed of DPOTRS in megaflops ***

DPOTRS with UPLO = 'U'

N / NRHS	50	100	200	300	400	500
1	.0	.0	8.0	18.0	16.0	25.0
2	.0	4.0	.0	36.0	64.0	33.3
16	.0	.0	64.0	57.6	73.1	66.7
100	.0	100.0	80.0	94.7	94.1	96.2

DPOTRS with UPLO = 'L'

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	18.0	32.0	25.0
2	.0	.0	16.0	36.0	32.0	33.3
16	.0	.0	64.0	72.0	73.1	66.7
100	50.0	66.7	88.9	90.0	91.4	92.6

*** Speed of DPOTRI in megaflops ***

DPOTRI with UPLO = 'U'

N / NB	50	100	200	300	400	500
1	.0	16.8	19.1	22.8	24.2	25.6
16	8.5	33.6	48.7	78.5	73.7	71.3
32	8.5	33.6	66.9	78.5	89.1	79.5
48	8.5	33.6	53.5	69.4	82.2	78.0
64	8.5	67.2	53.5	64.4	79.2	81.0

DPOTRI with UPLO = 'L'

N	50	100	200	300	400	500

N / NB	50	100	200	300	400	500
1	4.3	33.8	44.8	41.1	46.6	43.5
16	4.3	33.8	134.3	129.2	119.0	126.6
32	4.3	33.8	89.6	113.1	142.8	126.6
48	.0	.0	89.6	129.2	107.1	126.6
64	.0	33.8	134.3	129.2	119.0	126.6

DPOTRF with UPLO = 'L'

N / NB	50	100	200	300	400	500
1	.0	.0	33.6	33.5	32.4	32.1
16	.0	33.8	67.2	90.5	93.1	101.9
32	.0	.0	134.3	113.1	133.8	104.5
48	.0	33.8	67.2	100.5	133.8	119.4
64	.0	33.8	89.6	100.5	119.0	122.9

*** Speed of DPOTRS in megaflops ***

DPOTRS with UPLO = 'U'

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	32.0	50.0
2	.0	.0	.0	.0	64.0	50.0
16	.0	32.0	128.0	72.0	85.3	72.7
100	.0	200.0	100.0	138.5	145.5	142.9

DPOTRS with UPLO = 'L'

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	25.0
2	.0	.0	.0	.0	32.0	50.0
16	.0	.0	64.0	72.0	85.3	88.9
100	50.0	100.0	133.3	150.0	139.1	142.9

*** Speed of DPOTRI in megaflops ***

DPOTRI with UPLO = 'U'

N / NB	50	100	200	300	400	500
1	8.5	33.6	38.2	32.2	33.1	33.1
16	.0	67.2	107.1	95.0	101.8	99.4
32	.0	67.2	89.2	95.0	106.9	115.9
48	.0	67.2	89.2	120.3	122.1	122.7
64	8.5	67.2	89.2	112.8	115.5	122.7

DPOTRI with UPLO = 'L'

N	50	100	200	300	400	500

NB						
1	.0	22.4	19.8	19.0	20.7	21.8
16	8.5	67.2	59.5	66.8	76.3	78.7
32	.0	22.4	59.5	82.0	83.8	83.5
48	.0	67.2	59.5	78.5	82.2	82.6
64	.0	67.2	53.5	78.5	79.2	84.3

*** Speed of DPPTRF in megaflops ***

DPPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	.0	33.8	33.6	32.3	32.4	33.7

DPPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	.0	33.8	22.4	25.8	26.8	25.8

*** Speed of DPPTRS in megaflops ***

DPPTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	18.0	32.0	50.0
2	.0	.0	.0	36.0	32.0	25.0
16	.0	32.0	32.0	28.8	26.9	28.6
100	25.0	40.0	29.6	27.7	29.1	28.6

DPPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	18.0	32.0	50.0
2	.0	.0	16.0	36.0	32.0	25.0
16	.0	32.0	25.6	26.2	32.0	25.0
100	50.0	33.3	28.6	31.0	27.4	26.7

*** Speed of DPPTRI in megaflops ***

DPPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	22.4	25.5	26.2	26.7	26.0

DPPTRI with UPLO = 'L'

N	50	100	200	300	400	500

NB						
1	8.5	33.6	41.2	38.4	38.9	39.0
16	.0	67.2	107.1	100.3	101.8	112.8
32	.0	.0	107.1	106.1	118.7	128.4
48	8.5	.0	89.2	106.1	118.7	122.7
64	.0	67.2	107.1	106.1	122.1	126.5

*** Speed of DPPTRF in megaflops ***

DPPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	4.3	33.8	38.4	36.2	40.4	38.0

DPPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	.0	33.8	29.9	28.3	27.5	27.1

*** Speed of DPPTRS in megaflops ***

DPPTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	8.0	18.0	32.0	50.0
2	1.0	.0	.0	36.0	32.0	33.3
16	.0	32.0	42.7	41.1	36.6	36.4
100	50.0	50.0	40.0	35.3	34.0	34.5

DPPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	32.0	.0
2	.0	.0	.0	36.0	32.0	50.0
16	8.0	.0	42.7	36.0	36.6	36.4
100	50.0	50.0	42.1	34.6	35.6	35.0

*** Speed of DPPTRI in megaflops ***

DPPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	67.2	35.7	31.7	31.4	32.5

DPPTRI with UPLO = 'L'

N	50	100	200	300	400	500

	8.5	33.6	31.5	27.8	29.5	28.6

*** Speed of DPTTRF in megaflops ***

N	50	100	200	300	400	500
	.0	.0	.0	.0	.0	.0

*** Speed of DPTTRS in megaflops ***

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.2	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.8	.0	.0	.0	4.0
100	.0	.0	10.0	15.0	10.0	8.3

*** Speed of DPTSV in megaflops ***

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	2.5	.0	.0
100	.0	5.0	10.0	15.0	10.0	8.4

*** Speed of DSYTRF in megaflops ***

DSYTRF with UPLO = 'U'

N / NB	50	100	200	300	400	500
1	.0	33.9	20.7	20.6	21.6	22.7
16	.0	33.9	26.9	32.3	36.9	41.4
32	4.3	16.9	29.9	32.3	39.7	44.5
48	.0	11.3	22.4	29.2	36.3	38.7
64	.0	8.5	20.7	27.4	31.0	40.6

DSYTRF with UPLO = 'L'

N / NB	50	100	200	300	400	500
1	4.3	16.9	20.7	22.6	22.8	23.3
16	4.3	16.9	29.9	33.5	40.4	43.1
32	.0	33.9	24.4	36.2	40.4	44.5
48	.0	16.9	22.4	32.3	37.6	42.6
64	.0	16.9	22.4	28.3	34.0	41.0

*** Speed of DSYTRS in megaflops ***

DSYTRS with UPLO = 'U'

	.0	67.2	33.5	33.4	33.4	33.5

*** Speed of DPTTRF in megaflops ***

N	50	100	200	300	400	500
	.0	.0	.0	.0	.0	.0

*** Speed of DPTTRS in megaflops ***

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
100	2.5	.0	10.0	15.0	20.0	25.0

*** Speed of DPTSV in megaflops ***

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
100	.0	.0	.0	15.0	10.0	25.1

*** Speed of DSYTRF in megaflops ***

DSYTRF with UPLO = 'U'

N / NB	50	100	200	300	400	500
1	.0	16.9	33.6	26.6	25.8	25.6
16	4.3	33.9	67.2	64.6	63.0	68.5
32	.0	33.9	53.7	56.5	66.9	70.8
48	.0	33.9	33.6	45.2	56.4	62.4
64	.0	16.9	33.6	43.1	51.0	57.3

DSYTRF with UPLO = 'L'

N / NB	50	100	200	300	400	500
1	4.3	16.9	26.9	25.1	24.6	25.6
16	.0	33.9	67.2	60.3	66.9	72.1
32	.0	33.9	53.7	53.2	69.1	72.1
48	.0	33.9	33.6	50.3	59.5	65.3
64	4.3	16.9	33.6	41.1	49.8	58.0

*** Speed of DSYTRS in megaflops ***

DSYTRS with UPLO = 'U'

N / NRHS	50	100	200	300	400	500
1	.0	.0	8.0	9.0	16.0	10.0
2	.0	.0	16.0	12.0	21.3	20.0
16	7.9	15.9	25.5	26.1	25.6	26.6
100	12.4	15.3	18.6	18.9	18.2	20.6

DSYTRS with UPLO = 'L'

N / NRHS	50	100	200	300	400	500
1	.5	.0	8.0	9.0	10.7	12.5
2	.0	4.0	16.0	18.0	21.3	25.0
16	.0	31.8	25.5	28.8	26.9	26.6
100	9.9	16.6	18.6	18.9	19.5	19.9

*** Speed of DSYTRI in megaflops ***

DSYTRI with UPLO = 'U'

N	50	100	200	300	400	500
	8.3	33.3	35.6	40.0	39.5	41.3

DSYTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	33.3	38.1	41.9	39.9	43.4

*** Speed of DSPTRF in megaflops ***

DSPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	.0	33.9	26.9	25.8	26.1	24.7

DSPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	4.3	33.9	24.4	24.4	28.2	24.6

*** Speed of DSPTRS in megaflops ***

DSPTRS with UPLO = 'U'

N / NRHS	50	100	200	300	400	500
1	.0	.0	8.0	9.0	16.0	12.5
2	.0	.0	16.0	18.0	16.0	25.0

N / NRHS	50	100	200	300	400	500
1	.0	.0	.0	18.0	16.0	12.5
2	.0	.0	16.0	35.9	32.0	25.0
16	.0	31.8	42.6	47.9	46.5	47.0
100	24.8	24.9	26.6	24.3	29.3	29.4

DSYTRS with UPLO = 'L'

N / NRHS	50	100	200	300	400	500
1	.0	2.0	8.0	9.0	10.7	25.0
2	.0	.0	16.0	18.0	32.0	33.3
16	.0	31.8	42.6	71.9	51.1	50.0
100	24.8	24.9	28.5	26.8	28.5	28.9

*** Speed of DSYTRI in megaflops ***

DSYTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	66.7	66.7	69.2	67.7	70.0

DSYTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	66.7	76.2	66.7	68.8	70.6

*** Speed of DSPTRF in megaflops ***

DSPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	.0	33.9	26.9	28.3	26.8	27.5

DSPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	.0	33.9	26.9	26.6	28.2	27.3

*** Speed of DSPTRS in megaflops ***

DSPTRS with UPLO = 'U'

N / NRHS	50	100	200	300	400	500
1	.0	2.0	8.0	18.0	16.0	16.7
2	.0	.0	8.0	35.9	21.3	33.3

16	7.9	31.8	42.6	47.9	32.0	29.6
100	24.8	28.4	31.9	34.6	31.3	31.8

DSPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	2.0	.0	18.0	10.7	16.7
2	.0	.0	16.0	35.9	21.3	20.0
16	.0	31.8	31.9	35.9	34.1	27.6
100	49.5	28.4	31.9	32.7	32.6	32.4

*** Speed of DSPTRI in megaflops ***

DSPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	33.3	41.0	43.9	42.7	42.7

DSPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	66.7	41.0	43.9	41.8	42.3

*** Speed of DTRTRI in megaflops ***

DTRTRI with UPLO = 'U'

N	50	100	200	300	400	500
NB						
1	.0	16.7	19.0	22.0	23.4	25.1
16	.0	33.3	53.3	64.3	62.7	70.6
32	.0	33.3	53.3	75.0	79.0	81.7
48	.0	33.3	66.7	75.0	73.6	80.1
64	4.2	33.3	53.3	64.3	76.2	85.0

DTRTRI with UPLO = 'L'

N	50	100	200	300	400	500
NB						
1	.0	33.3	26.7	25.7	29.6	28.2
16	4.2	33.3	66.7	69.2	64.6	69.4
32	.0	33.3	66.7	75.0	79.0	81.7
48	.0	.0	66.7	56.3	79.0	81.7
64	.0	33.3	53.3	81.8	82.1	83.3

*** Speed of DTRTRS in megaflops ***

DTRTRS with UPLO = 'U'

N	50	100	200	300	400	500

16	.0	.0	127.7	57.5	63.9	57.1
100	49.5	66.3	38.0	33.9	34.7	34.4

DSPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	8.0	9.0	10.7	12.5
2	.0	.0	.0	35.9	32.0	33.3
16	.0	31.8	63.8	57.5	63.9	50.0
100	49.5	66.3	36.3	35.9	34.4	34.0

*** Speed of DSPTRI in megaflops ***

DSPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	8.3	.0	76.2	75.0	72.3	70.6

DSPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	66.7	76.2	66.7	69.9	72.5

*** Speed of DTRTRI in megaflops ***

DTRTRI with UPLO = 'U'

N	50	100	200	300	400	500
NB						
1	.0	33.3	44.4	36.0	36.2	34.7
16	.0	.0	88.9	90.0	97.0	99.2
32	.0	33.3	133.3	100.0	112.3	112.6
48	.0	.0	133.3	112.5	125.5	119.0
64	.0	33.3	88.9	112.5	125.5	126.3

DTRTRI with UPLO = 'L'

N	50	100	200	300	400	500
NB						
1	.0	33.3	44.4	34.6	35.0	33.1
16	.0	33.3	66.7	100.0	88.9	101.6
32	.0	.0	88.9	112.5	112.3	119.0
48	.0	33.3	88.9	100.0	118.5	122.6
64	.0	.0	88.9	112.5	125.5	122.6

*** Speed of DTRTRS in megaflops ***

DTRTRS with UPLO = 'U'

N	50	100	200	300	400	500

NRHS						
1	.0	1.0	.0	.0	8.0	25.0
2	.0	.0	8.0	18.0	.0	50.0
16	.0	.0	64.0	72.0	64.0	80.0
100	.0	100.0	100.0	90.0	88.9	96.2

DTRTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	9.0	.0	25.0
2	.0	.0	.0	9.0	32.0	25.0
16	.0	16.0	64.0	72.0	85.3	66.7
100	25.0	100.0	100.0	100.0	94.1	92.6

*** Speed of DTPTRI in megaflops ***

DTPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	33.3	24.2	25.0	25.7	25.3

DTPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	33.3	22.2	23.7	22.9	23.4

*** Speed of DTPTRS in megaflops ***

DTPTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	16.0	25.0
2	.0	.0	.0	18.0	32.0	16.7
16	.0	.0	21.3	24.0	23.3	23.5
100	25.0	16.7	25.0	22.0	23.5	23.1

DTPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	.0	16.0	25.0
2	.0	.0	.0	.0	32.0	50.0
16	4.0	16.0	21.3	28.8	25.6	26.7
100	25.0	25.0	23.5	28.1	26.2	25.3

*** Speed of DGEQRF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500

NRHS						
1	.0	.0	.0	9.0	.0	25.0
2	.0	.0	.0	.0	32.0	50.0
16	.0	.0	64.0	72.0	85.3	100.0
100	25.0	100.0	133.3	150.0	145.5	138.9

DTRTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	9.0	16.0	25.0
2	.0	.0	.0	.0	32.0	50.0
16	.0	16.0	64.0	72.0	128.0	100.0
100	.0	.0	133.3	150.0	133.3	138.9

*** Speed of DTPTRI in megaflops ***

DTPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	33.3	38.1	39.1	36.8	39.3

DTPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	33.3	38.1	32.1	31.8	30.9

*** Speed of DTPTRS in megaflops ***

DTPTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	9.0	16.0	.0
2	.0	.0	.0	.0	32.0	25.0
16	.0	.0	21.3	24.0	32.0	28.6
100	25.0	50.0	30.8	28.1	29.6	31.3

DTPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	4.0	.0	.0	25.0
2	.0	.0	8.0	18.0	16.0	25.0
16	4.0	.0	64.0	36.0	42.7	36.4
100	.0	50.0	36.4	40.9	39.0	38.5

*** Speed of DGEQRF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500

(NB, NX)						
(1, 0)	4.3	19.3	20.7	20.4	20.1	20.6
(16, 48)	.0	45.1	43.0	55.7	56.0	58.0
(32, 128)	17.2	19.3	37.1	50.3	59.5	62.8
(48, 128)	8.6	19.3	38.4	47.0	54.9	59.5
(64, 128)	17.2	19.3	35.8	42.1	51.0	55.0

*** Speed of DORGQR in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		.0	19.2	20.6	20.5	20.6	20.8
(16, 48)		16.9	33.6	51.0	53.1	57.8	57.8
(32, 128)		16.9	19.2	42.8	53.9	60.2	64.9
(48, 128)		16.9	19.2	39.7	48.8	54.5	59.0
(64, 128)		16.9	19.2	36.9	43.5	53.1	54.9

*** Speed of DORMQR in megaflops ***

DORMQR with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	18.1	10.7	16.7
16	.0	2.0	4.0	4.5	4.6	7.2
32	.0	2.0	2.7	2.6	2.7	2.4
48	.5	.0	1.3	1.4	1.7	1.7
64	.0	1.0	1.3	1.1	1.2	1.2

DORMQR with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.1	16.1	36.2	21.4	25.1
16	.0	4.1	8.1	7.2	10.7	10.0
32	1.0	4.1	5.4	7.2	5.4	4.4
48	.0	4.1	2.7	3.6	3.2	3.1
64	.0	2.0	2.0	2.3	2.5	2.4

DORMQR with SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	8.2	32.5	25.8	26.3	25.7	25.9
16	.0	32.5	25.8	36.2	39.5	40.1
32	8.2	32.5	25.8	26.3	28.6	27.7

(NB, NX)						
(1, 0)	8.6	33.8	28.3	29.7	30.5	30.1
(16, 48)	17.2	67.7	71.7	82.2	86.5	91.3
(32, 128)	.0	22.6	71.7	84.1	99.6	107.9
(48, 128)	17.2	27.1	63.2	77.0	92.1	97.2
(64, 128)	17.2	33.8	56.6	68.3	81.6	90.9

*** Speed of DORGQR in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		.0	22.4	30.6	29.1	30.5	30.2
(16, 48)		.0	44.8	76.5	83.9	87.2	87.9
(32, 128)		16.9	33.6	63.0	92.5	100.6	105.6
(48, 128)		.0	26.9	59.5	76.8	90.9	101.8
(64, 128)		16.9	26.9	66.9	72.2	83.0	91.2

*** Speed of DORMQR in megaflops ***

DORMQR with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	18.1	32.1	25.1
16	.0	2.0	8.1	6.0	8.0	7.2
32	.5	2.0	4.0	4.5	4.6	4.6
48	.5	2.0	2.7	3.0	3.6	3.0
64	.5	2.0	2.7	2.6	2.7	2.4

DORMQR with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.1	.0	36.2	32.1	33.4
16	.0	4.1	16.1	18.1	12.8	12.5
32	.0	4.1	8.1	9.0	8.0	8.4
48	.0	4.1	5.4	6.0	6.4	6.3
64	.0	4.1	5.4	4.5	5.4	5.0

DORMQR with SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	32.5	43.0	57.9	64.2	53.5
16	.0	32.5	64.5	57.9	57.1	61.7
32	8.2	.0	43.0	48.2	46.7	50.2

48	8.2	16.2	18.4	22.3	19.0	19.1
64	.0	16.2	16.1	18.1	16.6	14.6

DORMQR with SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	17.2	16.9	20.2	19.9	20.3	20.5
16	51.5	33.8	57.6	56.5	60.6	61.2
32	25.8	50.8	57.6	58.4	63.0	64.3
48	51.5	40.6	50.4	50.3	54.4	57.6
64	17.2	33.8	50.4	50.3	47.2	48.7

DORMQR with SIDE = 'L', TRANS = 'T', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	9.0	16.1	16.7
16	.5	.0	4.0	4.5	4.6	5.6
32	.0	2.0	2.0	2.0	2.5	2.4
48	.0	1.0	1.6	1.8	1.5	1.6
64	.5	2.0	1.2	1.2	1.2	1.2

DORMQR with SIDE = 'L', TRANS = 'T', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	16.1	36.2	32.1	33.4
16	.0	4.1	8.1	7.2	9.2	9.1
32	.0	4.1	3.2	4.5	4.6	5.0
48	.0	2.0	3.2	3.0	2.8	3.2
64	.0	2.0	2.3	2.3	2.6	2.3

DORMQR with SIDE = 'L', TRANS = 'T', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	16.2	32.2	24.1	24.5	26.7
16	.0	32.5	32.2	32.2	39.5	40.1
32	.0	16.2	25.8	28.9	30.2	28.7
48	8.2	32.5	21.5	19.3	19.8	21.1
64	8.2	16.2	14.3	15.2	15.6	15.7

DORMQR with SIDE = 'L', TRANS = 'T', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500

48	.0	32.5	32.2	36.2	34.3	38.2
64	.0	32.5	32.2	28.9	28.6	27.7

DORMQR with SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.8	29.0	31.0	30.7	30.3	30.6
16	51.5	67.7	73.3	90.5	82.4	80.9
32	51.5	67.7	89.6	95.2	97.3	102.3
48	.0	67.7	80.6	90.5	86.8	92.9
64	25.8	67.7	80.6	78.7	84.5	83.6

DORMQR with SIDE = 'L', TRANS = 'T', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	18.1	16.1	16.7
16	.0	.0	8.1	9.0	6.4	8.4
32	.0	.0	4.0	3.6	4.6	4.2
48	.0	2.0	4.0	3.0	2.9	3.3
64	.0	2.0	2.0	2.3	2.5	2.6

DORMQR with SIDE = 'L', TRANS = 'T', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	16.1	36.2	64.2	50.2
16	.0	.0	8.1	12.1	16.1	14.3
32	.0	4.1	8.1	7.2	9.2	8.4
48	.0	4.1	5.4	6.0	7.1	6.3
64	.0	4.1	4.0	5.2	4.6	4.4

DORMQR with SIDE = 'L', TRANS = 'T', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	64.5	57.9	64.2	50.2
16	8.2	.0	64.5	72.4	57.1	53.5
32	.0	32.5	43.0	41.3	51.4	50.2
48	.0	32.5	32.2	36.2	39.5	42.2
64	.0	32.5	25.8	32.2	30.2	29.7

DORMQR with SIDE = 'L', TRANS = 'T', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500

NB						
1	17.2	20.3	19.7	21.5	20.3	20.6
16	25.8	50.8	53.7	51.7	56.4	57.6
32	51.5	33.8	53.7	60.3	61.8	63.5
48	51.5	50.8	62.0	50.3	58.4	56.3
64	17.2	33.8	42.4	44.1	46.6	51.7

DORMQR with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	3.4	2.8	2.7	2.7
16	.0	.0	5.0	4.5	5.0	6.3
32	.6	.0	2.0	3.2	3.1	2.8
48	.6	2.5	1.7	1.7	2.1	2.1
64	.0	1.3	1.4	1.4	1.4	1.6

DORMQR with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	6.0	4.5	3.8	4.7
16	1.1	4.5	6.0	10.2	9.0	8.7
32	.0	2.3	4.5	4.5	4.2	5.1
48	.0	4.5	3.6	3.1	3.4	3.6
64	.0	2.3	2.6	2.4	2.5	2.3

DORMQR with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	16.4	10.9	13.3	12.4	12.5
16	.0	32.8	32.7	36.7	37.2	37.0
32	.0	32.8	32.7	29.3	24.8	29.1
48	8.3	16.4	21.8	19.6	20.9	22.0
64	8.3	16.4	13.1	15.4	15.3	14.8

DORMQR with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.6	25.3	32.2	24.8	26.6	25.9
16	51.1	67.5	62.0	64.7	68.4	69.8
32	51.1	50.6	53.7	67.1	61.8	63.6
48	25.6	40.5	47.4	54.9	56.4	57.7
64	25.6	40.5	57.6	48.9	50.3	49.7

NB						
1	25.8	29.0	29.9	31.2	31.2	29.2
16	.0	67.7	73.3	82.2	86.8	83.6
32	.0	101.5	100.8	95.2	97.3	104.5
48	.0	67.7	80.6	86.1	89.2	92.9
64	25.8	67.7	80.6	86.1	84.5	83.6

DORMQR with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	10.1	11.3	20.1	15.7
16	.0	2.5	10.1	11.3	10.0	10.4
32	.0	2.5	5.0	5.6	6.7	5.7
48	.0	2.5	3.4	3.8	4.5	3.7
64	.0	.0	3.4	2.8	2.9	2.7

DORMQR with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.5	18.1	20.3	24.1	28.2
16	.0	.0	18.1	13.5	14.4	12.5
32	.0	4.5	9.0	10.2	8.0	8.7
48	.0	4.5	9.0	6.8	6.6	5.9
64	.0	4.5	4.5	5.1	5.2	4.9

DORMQR with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	32.8	43.6	36.7	40.1	33.9
16	8.3	.0	43.6	73.4	52.1	54.3
32	8.3	.0	43.6	41.9	40.1	47.9
48	.0	32.8	32.7	32.6	34.8	37.0
64	.0	16.4	32.7	29.3	29.0	29.1

DORMQR with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.6	25.3	26.9	25.9	26.4	25.4
16	51.1	67.5	100.8	100.6	100.5	98.5
32	51.1	67.5	89.6	95.3	100.5	96.6
48	51.1	67.5	80.6	90.5	91.9	93.0
64	25.6	67.5	80.6	86.2	86.9	91.3

DORMQR with SIDE = 'R', TRANS = 'T', M = 1

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		.0	2.5	5.0	3.2	2.5	3.0
16		.0	2.5	2.5	11.3	5.7	5.7
32		.0	2.5	2.5	2.8	2.9	3.1
48		.6	1.3	1.7	2.1	2.7	2.0
64		.0	1.3	1.3	1.5	1.5	1.5

DORMQR with SIDE = 'R', TRANS = 'T', M = 2

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		1.1	4.5	9.0	5.1	4.8	4.3
16		.0	.0	6.0	8.1	7.2	10.2
32		1.1	4.5	4.5	4.5	5.2	5.1
48		1.1	2.3	3.0	3.4	3.4	3.4
64		.0	2.3	2.3	2.5	2.5	2.5

DORMQR with SIDE = 'R', TRANS = 'T', M = 16

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		8.3	16.4	10.9	13.3	12.7	12.3
16		8.3	32.8	43.6	41.9	47.4	38.8
32		8.3	32.8	21.8	26.7	34.8	25.4
48		.0	16.4	16.3	19.6	21.7	20.4
64		.0	10.9	18.7	15.4	16.3	14.5

DORMQR with SIDE = 'R', TRANS = 'T', M = 100

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		25.6	28.9	24.4	25.9	23.8	26.0
16		51.1	50.6	57.6	67.1	61.8	67.0
32		51.1	50.6	53.7	54.9	63.1	62.0
48		51.1	50.6	47.4	53.3	58.5	55.8
64		25.6	40.5	42.4	48.9	50.3	51.8

*** Speed of DGELQF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		17.2	22.6	21.9	22.1	24.1	25.7
(16, 48)		17.2	33.8	35.8	44.1	47.1	53.1
(32, 128)		17.2	19.3	33.6	38.5	43.9	50.7

DORMQR with SIDE = 'R', TRANS = 'T', M = 1

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		.0	.0	10.1	22.6	13.4	15.7
16		.0	.0	10.1	7.5	10.0	8.9
32		.0	.0	5.0	4.5	5.7	5.2
48		.0	.0	3.4	3.8	4.0	3.7
64		.0	2.5	3.4	3.8	3.3	3.5

DORMQR with SIDE = 'R', TRANS = 'T', M = 2

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		.0	.0	18.1	40.6	24.1	22.5
16		.0	4.5	18.1	20.3	18.0	16.1
32		.0	4.5	9.0	10.2	10.3	9.4
48		1.1	4.5	6.0	6.8	6.0	7.5
64		.0	4.5	4.5	4.5	5.2	5.4

DORMQR with SIDE = 'R', TRANS = 'T', M = 16

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		.0	32.8	32.7	36.7	40.1	35.4
16		.0	32.8	43.6	58.7	57.9	62.6
32		.0	32.8	43.6	41.9	43.4	42.8
48		.0	32.8	32.7	41.9	40.1	32.6
64		.0	32.8	32.7	29.3	27.4	31.3

DORMQR with SIDE = 'R', TRANS = 'T', M = 100

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		25.6	28.9	27.8	25.9	26.6	26.0
16		.0	101.3	89.6	95.3	100.5	93.0
32		51.1	67.5	89.6	100.6	100.5	93.0
48		51.1	67.5	80.6	82.3	94.6	94.8
64		25.6	50.6	67.2	82.3	84.6	86.6

*** Speed of DGELQF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		17.2	33.8	25.6	25.5	26.0	26.0
(16, 48)		.0	67.7	97.7	92.8	99.6	102.6
(32, 128)		.0	22.6	59.7	75.4	90.2	92.4

(48, 128)	17.2	22.6	28.3	38.5	43.0	50.4
(64, 128)	17.2	22.6	27.6	34.8	41.8	43.5

*** Speed of DORGLQ in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		.0	22.4	19.8	24.4	23.4	25.2
(16, 48)		16.9	26.9	35.7	48.8	50.6	50.9
(32, 128)		16.9	22.4	34.5	40.6	46.0	51.4
(48, 128)		16.9	22.4	31.5	40.6	43.2	50.1
(64, 128)		16.9	22.4	28.9	35.4	41.3	45.7

*** Speed of DORMLQ in megaflops ***

DORMLQ with SIDE = 'L', TRANS = 'N', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	2.0	2.7	2.3	2.1	2.2
16	.5	2.0	1.2	1.3	1.1	1.3
32	.5	2.0	1.6	1.1	1.1	1.0
48	.5	1.0	1.0	1.0	1.1	.9
64	.0	1.0	.9	.9	.8	.8

DORMLQ with SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	1.0	4.1	4.0	4.0	4.3	3.5
16	.0	4.1	2.7	3.3	2.4	2.6
32	.0	4.1	2.3	2.0	2.3	2.2
48	1.0	2.0	2.7	1.8	2.0	1.8
64	.0	2.0	1.8	1.6	1.7	1.7

DORMLQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	16.2	12.9	15.2	16.1	14.6
16	.0	32.5	12.9	13.8	13.9	14.6
32	.0	16.2	12.9	14.5	13.9	13.8
48	8.2	8.1	12.9	12.6	12.8	12.7
64	8.2	16.2	11.7	11.1	11.7	11.3

(48, 128)	17.2	27.1	44.8	69.6	77.2	89.9
(64, 128)	17.2	27.1	48.9	58.4	70.2	77.8

*** Speed of DORGLQ in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		16.9	22.4	24.9	25.4	25.9	25.7
(16, 48)		.0	67.2	89.2	92.5	97.2	103.7
(32, 128)		16.9	26.9	59.5	76.8	90.0	98.2
(48, 128)		16.9	22.4	48.7	65.6	79.2	88.3
(64, 128)		16.9	22.4	44.6	62.2	69.5	79.1

*** Speed of DORMLQ in megaflops ***

DORMLQ with SIDE = 'L', TRANS = 'N', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	8.1	18.1	10.7	12.5
16	.5	2.0	8.1	4.5	8.0	7.2
32	.5	2.0	2.7	3.0	3.2	3.6
48	.0	2.0	4.0	2.3	2.9	2.4
64	.0	2.0	1.6	2.0	1.6	1.9

DORMLQ with SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	4.1	.0	18.1	16.1	25.1
16	.0	.0	16.1	12.1	12.8	10.0
32	.0	4.1	5.4	7.2	7.1	5.9
48	.0	4.1	5.4	4.5	4.9	4.4
64	.0	4.1	3.2	3.6	3.4	3.5

DORMLQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	32.5	32.2	41.3	36.7	28.7
16	.0	32.5	64.5	48.2	42.8	42.2
32	8.2	32.5	32.2	36.2	30.2	33.4
48	.0	16.2	25.8	28.9	27.0	25.9
64	.0	32.5	32.2	22.3	22.3	21.7

DORMLQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	17.2	18.5	16.4	17.6	18.5	18.5
16	51.5	40.6	42.4	43.1	46.6	45.2
32	51.5	40.6	44.8	45.2	50.2	47.8
48	51.5	33.8	42.4	45.2	42.8	46.0
64	12.9	29.0	44.8	43.1	44.0	44.8

DORMLQ with SIDE = 'L', TRANS = 'T', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	2.7	2.0	2.1	2.1
16	.0	2.0	1.3	1.3	1.2	1.3
32	.0	1.0	.9	1.4	1.1	1.1
48	.0	1.0	1.0	1.0	.9	1.1
64	.0	1.0	.8	.9	.9	.9

DORMLQ with SIDE = 'L', TRANS = 'T', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	4.1	5.4	4.0	4.0	3.7
16	1.0	2.0	2.7	2.1	2.6	2.6
32	1.0	2.0	2.7	2.1	2.4	2.3
48	.0	4.1	1.8	2.0	1.9	1.9
64	.0	2.0	1.8	1.7	1.8	1.7

DORMLQ with SIDE = 'L', TRANS = 'T', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	16.2	16.1	14.5	15.6	14.1
16	8.2	16.2	16.1	13.2	14.3	13.8
32	8.2	16.2	14.3	13.8	14.7	14.1
48	8.2	16.2	12.9	13.2	13.2	12.9
64	.0	16.2	10.7	12.1	12.2	11.6

DORMLQ with SIDE = 'L', TRANS = 'T', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	12.9	14.5	18.7	18.1	18.0	18.6
16	25.8	50.8	40.3	46.4	39.7	45.6
32	51.5	50.8	44.8	46.4	47.9	49.2

DORMLQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	25.8	33.8	31.0	30.2	28.9	28.3
16	.0	67.7	67.2	75.4	84.5	79.6
32	51.5	101.5	100.8	86.1	94.5	94.6
48	51.5	50.8	73.3	78.7	82.4	85.0
64	25.8	67.7	67.2	72.4	74.7	77.2

DORMLQ with SIDE = 'L', TRANS = 'T', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	8.1	9.0	16.1	8.4
16	.0	.0	8.1	6.0	5.4	5.6
32	.0	2.0	4.0	3.6	3.6	3.6
48	.0	.0	2.0	2.6	2.5	2.4
64	.0	2.0	2.0	2.0	1.9	1.8

DORMLQ with SIDE = 'L', TRANS = 'T', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	1.0	.0	16.1	18.1	32.1	20.1
16	.0	.0	8.1	9.0	8.0	11.1
32	.0	.0	5.4	6.0	5.8	6.7
48	1.0	4.1	5.4	4.5	4.3	4.6
64	.0	2.0	3.2	3.6	3.4	3.6

DORMLQ with SIDE = 'L', TRANS = 'T', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	32.5	32.2	36.2	36.7	26.7
16	8.2	32.5	43.0	41.3	46.7	42.2
32	.0	32.5	32.2	32.2	32.1	33.4
48	.0	32.5	25.8	26.3	28.6	27.7
64	8.2	32.5	21.5	22.3	22.3	21.1

DORMLQ with SIDE = 'L', TRANS = 'T', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	25.8	25.4	28.8	29.2	28.9	28.2
16	.0	67.7	73.3	78.7	80.3	80.9
32	51.5	50.8	89.6	90.5	89.2	92.9

48	17.2	40.6	42.4	42.1	44.6	44.8
64	17.2	29.0	35.0	42.1	44.6	42.1

DORMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.6	1.3	1.3	1.2	1.3	1.3
16	.0	2.5	1.4	1.5	1.4	1.6
32	.0	1.3	1.7	1.4	1.4	1.4
48	.0	.8	2.0	1.2	1.3	1.2
64	.0	.6	1.1	1.0	1.1	.9

DORMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	2.3	1.8	2.3	2.3	2.1
16	1.1	4.5	3.0	3.1	2.7	2.6
32	1.1	2.3	2.6	2.4	2.4	2.4
48	.0	2.3	2.6	2.4	2.1	2.0
64	.0	1.5	1.6	1.7	1.8	1.9

DORMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	10.9	8.7	8.9	9.8	9.1
16	.0	32.8	18.7	17.3	16.8	16.3
32	8.3	10.9	18.7	15.4	14.5	15.1
48	.0	16.4	13.1	13.3	13.4	12.5
64	8.3	16.4	11.9	11.7	12.4	12.2

DORMLQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	25.6	22.5	20.7	23.8	23.1	22.5
16	51.1	50.6	50.4	48.9	51.0	49.7
32	51.1	50.6	44.8	46.4	47.3	46.1
48	51.1	50.6	47.4	44.2	45.9	44.8
64	17.0	50.6	40.3	40.2	42.3	43.3

DORMLQ with SIDE = 'R', TRANS = 'T', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500

48	51.5	101.5	89.6	72.4	78.3	86.5
64	51.5	67.7	73.3	75.4	74.7	73.8

DORMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.6	2.5	10.1	11.3	4.5	2.7
16	.0	.0	5.0	7.5	8.0	6.3
32	.0	2.5	5.0	4.5	3.6	3.9
48	.0	2.5	3.4	2.8	2.7	3.0
64	.0	2.5	2.5	2.3	2.5	2.2

DORMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	.0	9.0	13.5	6.6	4.5
16	.0	.0	9.0	10.2	9.0	10.2
32	.0	.0	6.0	6.8	5.6	6.6
48	.0	4.5	9.0	4.5	5.6	4.9
64	1.1	.0	3.6	3.7	4.0	3.6

DORMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	32.8	43.6	29.3	21.7	17.3
16	8.3	32.8	43.6	41.9	47.4	45.2
32	.0	32.8	32.7	41.9	37.2	35.4
48	8.3	.0	32.7	26.7	27.4	29.1
64	.0	16.4	18.7	22.6	22.7	23.3

DORMLQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	25.6	25.3	26.0	24.5	25.3	23.8
16	.0	50.6	100.8	95.3	100.5	102.5
32	.0	67.5	80.6	86.2	91.9	91.3
48	51.1	67.5	80.6	82.3	82.5	83.7
64	25.6	67.5	67.2	69.6	74.8	76.1

DORMLQ with SIDE = 'R', TRANS = 'T', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500

NB						
1	.0	2.5	1.3	1.3	1.3	1.2
16	.0	2.5	1.7	1.5	1.5	1.5
32	.0	2.5	1.3	1.3	1.4	1.4
48	.6	2.5	1.7	1.1	1.2	1.1
64	.6	.8	1.3	1.0	1.0	1.1

DORMLQ with SIDE = 'R', TRANS = 'T', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	1.1	4.5	2.3	2.3	2.3	2.2
16	.0	4.5	2.6	2.9	2.8	2.7
32	.0	4.5	3.0	2.4	2.4	2.5
48	1.1	2.3	1.8	2.1	2.2	2.0
64	.0	2.3	2.0	1.8	1.9	1.9

DORMLQ with SIDE = 'R', TRANS = 'T', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	8.3	10.9	8.2	8.9	9.5	8.2
16	8.3	16.4	18.7	17.3	16.8	16.0
32	.0	16.4	18.7	14.7	14.5	14.8
48	8.3	10.9	14.5	12.2	13.4	14.3
64	.0	10.9	10.9	10.5	12.1	12.7

DORMLQ with SIDE = 'R', TRANS = 'T', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	25.6	22.5	21.8	21.8	22.0	23.5
16	25.6	67.5	50.4	48.9	51.0	49.2
32	25.6	40.5	50.4	47.6	48.0	47.4
48	25.6	33.8	47.4	44.2	47.3	43.3
64	25.6	40.5	40.3	40.2	41.8	46.5

*** Speed of DGEQLF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	17.2	22.6	18.9	20.6	20.9	21.2
(16, 48)	17.2	45.1	48.9	51.7	54.2	58.9
(32, 128)	17.2	19.3	41.3	51.7	57.1	60.1
(48, 128)	17.2	22.6	35.8	45.2	52.9	58.7
(64, 128)	17.2	22.6	37.1	43.1	48.4	53.8

NB						
1	.0	.0	10.1	5.6	3.3	2.6
16	.0	2.5	10.1	7.5	6.7	6.3
32	.6	2.5	10.1	3.8	5.0	3.9
48	.6	2.5	2.5	3.2	2.4	2.8
64	.0	2.5	2.5	2.1	2.2	2.2

DORMLQ with SIDE = 'R', TRANS = 'T', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	4.5	18.1	10.2	5.6	4.2
16	.0	4.5	9.0	10.2	12.0	9.4
32	.0	4.5	9.0	5.8	7.2	6.3
48	.0	4.5	3.6	5.1	4.8	4.9
64	.0	2.3	6.0	4.1	4.0	3.9

DORMLQ with SIDE = 'R', TRANS = 'T', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	32.8	26.1	26.7	20.9	17.0
16	8.3	.0	43.6	48.9	57.9	47.9
32	8.3	32.8	43.6	36.7	34.8	35.4
48	.0	16.4	32.7	32.6	29.0	28.1
64	.0	32.8	18.7	22.6	24.8	22.6

DORMLQ with SIDE = 'R', TRANS = 'T', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	25.6	33.8	27.8	25.5	25.3	23.4
16	51.1	101.3	100.8	95.3	97.5	96.6
32	51.1	101.3	89.6	90.5	91.9	93.0
48	.0	67.5	73.3	82.3	82.5	85.1
64	25.6	67.5	62.0	72.4	76.6	76.1

*** Speed of DGEQLF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	17.2	33.8	29.9	30.4	30.7	29.4
(16, 48)	.0	45.1	76.8	86.1	83.2	88.4
(32, 128)	17.2	33.8	67.2	90.5	93.1	106.5
(48, 128)	.0	33.8	63.2	84.1	91.1	98.9
(64, 128)	17.2	33.8	56.6	70.9	81.6	91.3

*** Speed of DORGQL in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	16.9	22.4	20.6	21.6	21.8	20.8
(16,	48)	16.9	67.2	53.5	52.3	57.8	61.4
(32,	128)	16.9	22.4	41.2	53.1	58.6	69.3
(48,	128)	16.9	22.4	35.7	46.9	54.1	57.8
(64,	128)	16.9	22.4	35.7	44.0	51.2	54.2

*** Speed of DORMQL in megaflops ***

DORMQL with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	9.0	16.1	25.1
16	.0	.0	4.0	4.5	6.4	5.0
32	.5	2.0	2.7	2.6	2.5	2.5
48	.5	1.0	1.6	1.6	1.7	1.7
64	.0	2.0	1.2	1.3	1.3	1.2

DORMQL with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	36.2	32.1	20.1
16	.0	.0	8.1	9.0	10.7	9.1
32	.0	4.1	5.4	5.2	4.9	5.0
48	1.0	2.0	3.2	3.3	3.6	3.2
64	.0	4.1	2.3	2.6	2.5	2.4

DORMQL with SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	16.2	21.5	22.3	25.7	25.9
16	8.2	32.5	32.2	41.3	36.7	38.2
32	8.2	16.2	25.8	26.3	28.6	28.7
48	8.2	16.2	18.4	20.7	21.4	22.9
64	8.2	16.2	14.3	17.0	16.6	17.4

DORMQL with SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500

*** Speed of DORGQL in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	16.9	33.6	30.6	30.1	31.3	30.0
(16,	48)	16.9	67.2	76.5	85.9	83.8	87.9
(32,	128)	.0	26.9	71.4	85.9	96.1	107.7
(48,	128)	.0	26.9	63.0	80.2	90.9	98.2
(64,	128)	.0	26.9	56.3	72.2	81.4	94.8

*** Speed of DORMQL in megaflops ***

DORMQL with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	18.1	10.7	25.1
16	.0	.0	8.1	9.0	6.4	8.4
32	.0	2.0	4.0	4.5	4.6	5.0
48	.0	2.0	2.7	3.6	3.6	3.9
64	.0	2.0	2.0	3.0	3.2	3.0

DORMQL with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	36.2	32.1	33.4
16	.0	.0	16.1	18.1	12.8	14.3
32	.0	4.1	16.1	9.0	9.2	10.0
48	1.0	4.1	5.4	6.0	5.8	5.9
64	.0	4.1	5.4	5.2	4.6	4.8

DORMQL with SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	8.2	32.5	43.0	48.2	64.2	50.2
16	.0	32.5	43.0	96.5	64.2	61.7
32	.0	16.2	64.5	57.9	42.8	44.6
48	.0	32.5	43.0	36.2	32.1	40.1
64	.0	32.5	32.2	32.2	39.5	30.9

DORMQL with SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500

NB						
1	17.2	18.5	20.7	20.3	21.0	19.8
16	25.8	50.8	50.4	56.5	56.4	58.3
32	25.8	40.6	57.6	58.4	59.5	61.2
48	17.2	40.6	50.4	53.2	54.4	55.7
64	17.2	33.8	47.4	47.6	51.0	51.2

DORMQL with SIDE = 'L', TRANS = 'T', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	18.1	16.1	16.7
16	.0	2.0	4.0	4.5	4.6	6.3
32	.0	2.0	2.0	2.3	2.5	2.3
48	.0	2.0	1.6	1.6	1.8	1.7
64	.0	1.0	1.3	1.4	1.2	1.4

DORMQL with SIDE = 'L', TRANS = 'T', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	36.2	21.4	25.1
16	1.0	4.1	8.1	12.1	9.2	10.0
32	.0	4.1	4.0	4.5	4.9	5.3
48	.0	2.0	2.7	3.3	3.4	3.5
64	.0	2.0	2.7	2.4	2.2	2.4

DORMQL with SIDE = 'L', TRANS = 'T', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	32.5	25.8	28.9	27.0	25.1
16	.0	32.5	32.2	36.2	36.7	38.2
32	.0	32.5	21.5	26.3	28.6	27.7
48	.0	16.2	21.5	20.7	20.6	20.6
64	.0	16.2	16.1	16.1	16.1	17.1

DORMQL with SIDE = 'L', TRANS = 'T', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.8	20.3	20.7	21.8	20.2	20.6
16	51.5	50.8	50.4	54.8	57.4	57.6
32	51.5	50.8	57.6	58.4	60.6	63.5
48	25.8	40.6	53.7	53.2	55.4	57.6
64	17.2	40.6	44.8	48.9	49.4	51.2

NB						
1	25.8	29.0	31.0	30.7	28.9	30.4
16	51.5	101.5	80.6	82.2	86.8	82.2
32	51.5	101.5	89.6	95.2	107.1	106.7
48	51.5	67.7	80.6	90.5	91.8	94.6
64	51.5	67.7	80.6	82.2	86.8	89.6

DORMQL with SIDE = 'L', TRANS = 'T', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	18.1	32.1	25.1
16	.0	2.0	8.1	6.0	6.4	6.3
32	.0	.0	4.0	4.5	4.6	4.6
48	.0	.0	4.0	3.6	3.6	3.3
64	.0	1.0	2.7	2.6	2.9	3.0

DORMQL with SIDE = 'L', TRANS = 'T', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	16.1	36.2	32.1	25.1
16	.0	.0	16.1	12.1	21.4	20.1
32	1.0	4.1	5.4	9.0	9.2	9.1
48	.0	2.0	5.4	6.0	7.1	6.3
64	.0	4.1	4.0	5.2	4.9	5.9

DORMQL with SIDE = 'L', TRANS = 'T', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	16.2	64.5	57.9	51.4	47.2
16	.0	16.2	64.5	57.9	73.4	61.7
32	.0	.0	32.2	48.2	39.5	47.2
48	8.2	.0	25.8	41.3	34.3	38.2
64	.0	32.5	25.8	32.2	34.3	36.5

DORMQL with SIDE = 'L', TRANS = 'T', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.8	25.4	29.9	29.7	31.8	30.2
16	51.5	101.5	80.6	78.7	86.8	86.5
32	51.5	67.7	100.8	95.2	103.6	106.7
48	.0	67.7	89.6	86.1	89.2	94.6
64	25.8	101.5	73.3	82.2	84.5	82.2

DORMQL with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	2.5	3.4	2.8	2.5	2.2
16	.0	.0	5.0	5.6	5.7	4.8
32	.0	2.5	3.4	3.8	2.9	3.1
48	.6	2.5	2.0	2.1	2.0	2.1
64	.0	1.3	1.7	1.6	1.5	1.5

DORMQL with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.5	6.0	4.5	3.8	3.6
16	.0	4.5	6.0	8.1	9.0	8.7
32	1.1	4.5	4.5	5.1	4.8	5.4
48	1.1	2.3	3.6	3.7	4.2	3.6
64	.0	4.5	2.6	2.5	2.4	2.6

DORMQL with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	8.3	10.9	14.5	11.7	11.8	10.9
16	8.3	16.4	32.7	29.3	34.8	37.0
32	.0	16.4	26.1	26.7	29.0	28.1
48	8.3	16.4	21.8	21.0	22.7	21.4
64	8.3	16.4	14.5	16.3	15.8	16.0

DORMQL with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	17.0	25.3	26.9	25.1	24.9	24.5
16	51.1	50.6	67.2	64.7	64.3	67.0
32	51.1	40.5	57.6	58.4	64.3	63.6
48	25.6	33.8	53.7	54.9	56.4	58.4
64	25.6	50.6	47.4	48.9	49.5	50.7

DORMQL with SIDE = 'R', TRANS = 'T', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	5.0	2.8	2.5	2.3
16	.6	2.5	5.0	4.5	5.0	4.5
32	.0	2.5	2.5	3.8	2.9	3.1

DORMQL with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	22.6	40.1	20.9
16	.0	2.5	10.1	7.5	10.0	12.5
32	.0	.0	10.1	5.6	5.7	6.3
48	.0	2.5	5.0	5.6	5.0	4.2
64	.0	2.5	3.4	4.5	3.3	3.7

DORMQL with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	18.1	40.6	36.1	18.8
16	.0	4.5	18.1	13.5	18.0	14.1
32	.0	4.5	9.0	8.1	8.0	9.4
48	1.1	4.5	9.0	6.8	7.2	6.6
64	.0	.0	4.5	5.8	5.2	5.6

DORMQL with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	8.3	32.8	43.6	36.7	40.1	33.9
16	.0	32.8	65.3	48.9	52.1	50.9
32	.0	32.8	65.3	48.9	43.4	45.2
48	.0	32.8	26.1	41.9	37.2	37.0
64	.0	32.8	32.7	29.3	30.7	33.9

DORMQL with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.6	28.9	26.9	27.4	26.4	25.8
16	.0	101.3	100.8	106.5	97.5	104.6
32	.0	50.6	89.6	95.3	100.5	100.5
48	51.1	67.5	80.6	95.3	91.9	93.0
64	51.1	67.5	73.3	86.2	84.6	91.3

DORMQL with SIDE = 'R', TRANS = 'T', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	10.1	22.6	20.1	20.9
16	.0	.0	10.1	11.3	10.0	10.4
32	.0	2.5	5.0	5.6	6.7	6.3

48	.0	2.5	2.0	2.1	2.0	2.0
64	.0	2.5	1.7	1.6	1.4	1.6

DORMQL with SIDE = 'R', TRANS = 'T', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	4.5	4.5	4.0	3.6
16	.0	.0	9.0	13.5	7.2	8.7
32	.0	4.5	6.0	5.1	4.8	5.4
48	.0	4.5	3.6	3.4	3.6	3.6
64	.0	2.3	2.6	2.7	2.4	2.6

DORMQL with SIDE = 'R', TRANS = 'T', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	16.4	11.9	11.7	11.6	10.4
16	.0	32.8	43.6	32.6	37.2	38.8
32	8.3	32.8	26.1	26.7	26.1	28.1
48	.0	16.4	18.7	19.6	20.9	21.4
64	.0	16.4	18.7	16.3	14.5	15.7

DORMQL with SIDE = 'R', TRANS = 'T', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.6	28.9	26.0	25.1	24.7	24.6
16	25.6	50.6	67.2	62.4	64.3	67.0
32	51.1	50.6	67.2	60.4	60.7	62.8
48	25.6	40.5	57.6	56.6	51.9	57.1
64	51.1	50.6	47.4	48.9	48.0	49.2

*** Speed of DGERQF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	17.2	22.6	21.5	22.5	24.5	25.3
(16, 48)	17.2	33.8	32.6	38.9	47.9	50.5
(32, 128)	.0	19.3	31.6	38.5	44.2	49.3
(48, 128)	17.2	22.6	30.7	38.5	43.7	47.1
(64, 128)	17.2	22.6	29.9	32.9	39.8	47.0

*** Speed of DORGRQ in megaflops ***

K = min(M,N)

48	.0	2.5	3.4	4.5	3.6	4.5
64	.0	2.5	3.4	3.8	3.1	3.1

DORMQL with SIDE = 'R', TRANS = 'T', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.5	18.1	40.6	24.1	28.2
16	.0	.0	9.0	13.5	14.4	12.5
32	1.1	.0	9.0	10.2	10.3	9.4
48	.0	4.5	6.0	8.1	7.2	6.6
64	.0	4.5	6.0	4.5	6.0	5.4

DORMQL with SIDE = 'R', TRANS = 'T', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	32.8	43.6	32.6	32.6	32.6
16	8.3	.0	43.6	58.7	57.9	58.2
32	.0	32.8	43.6	48.9	43.4	42.8
48	8.3	32.8	32.7	36.7	37.2	40.7
64	.0	16.4	26.1	32.6	30.7	31.3

DORMQL with SIDE = 'R', TRANS = 'T', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.1	28.9	26.0	25.1	25.7	25.6
16	51.1	67.5	89.6	95.3	100.5	104.6
32	51.1	101.3	89.6	86.2	94.6	98.5
48	51.1	67.5	80.6	86.2	89.3	93.0
64	25.6	67.5	80.6	82.3	86.9	88.1

*** Speed of DGERQF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	17.2	22.6	25.0	26.0	26.3	26.9
(16, 48)	17.2	67.7	82.7	92.8	98.5	101.9
(32, 128)	17.2	22.6	63.2	78.7	87.4	96.1
(48, 128)	.0	27.1	51.2	69.6	79.3	86.6
(64, 128)	.0	33.8	51.2	61.3	73.2	80.4

*** Speed of DORGRQ in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		16.9	19.2	23.3	22.0	24.0	24.7
(16, 48)		16.9	26.9	38.2	40.1	49.4	52.8
(32, 128)		.0	22.4	31.5	38.4	44.1	51.2
(48, 128)		16.9	19.2	31.5	38.0	44.5	48.2
(64, 128)		16.9	19.2	29.7	33.7	40.3	52.0

*** Speed of DORMRQ in megaflops ***

DORMRQ with SIDE = 'L', TRANS = 'N', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	2.0	2.7	2.0	2.0	1.9
16	.0	2.0	1.6	1.3	1.3	1.3
32	.0	1.0	1.6	1.3	1.1	1.1
48	.5	2.0	1.2	1.1	1.0	1.0
64	.0	1.0	.9	1.0	.8	.9

DORMRQ with SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	4.1	5.4	5.2	3.8	3.7
16	.0	4.1	2.7	2.8	2.6	2.6
32	.0	4.1	2.7	2.1	2.4	2.2
48	1.0	2.0	2.0	1.9	1.9	2.0
64	.0	4.1	1.8	1.9	1.7	1.6

DORMRQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	32.5	18.4	15.2	15.1	14.9
16	.0	32.5	18.4	14.5	14.3	14.1
32	.0	16.2	12.9	13.8	15.1	14.1
48	8.2	16.2	12.9	13.2	12.2	13.2
64	.0	16.2	11.7	12.6	13.2	11.5

DORMRQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	17.2	20.3	17.9	18.6	18.8	19.3
16	51.5	40.6	44.8	44.1	43.4	43.6
32	25.8	40.6	42.4	46.4	45.2	48.2

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		16.9	26.9	26.8	25.8	26.1	26.3
(16, 48)		.0	44.8	76.5	92.5	99.4	104.3
(32, 128)		16.9	26.9	59.5	73.7	87.2	93.8
(48, 128)		16.9	26.9	51.0	68.1	79.2	87.9
(64, 128)		.0	33.6	48.7	59.2	70.7	78.7

*** Speed of DORMRQ in megaflops ***

DORMRQ with SIDE = 'L', TRANS = 'N', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	8.1	18.1	10.7	10.0
16	.0	.0	8.1	6.0	8.0	6.3
32	.0	.0	4.0	3.6	4.0	3.6
48	.0	2.0	2.0	2.6	2.3	2.4
64	.0	.0	1.6	2.0	1.9	1.9

DORMRQ with SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	.0	18.1	21.4	16.7
16	1.0	.0	16.1	9.0	9.2	12.5
32	.0	4.1	8.1	7.2	6.4	6.3
48	.0	4.1	5.4	5.2	4.6	4.4
64	.0	4.1	4.0	3.6	4.0	3.5

DORMRQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	32.5	43.0	41.3	30.2	27.7
16	.0	32.5	43.0	41.3	42.8	44.6
32	8.2	32.5	25.8	32.2	30.2	33.4
48	.0	.0	25.8	26.3	25.7	25.1
64	.0	32.5	25.8	26.3	21.4	21.7

DORMRQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	25.8	29.0	29.9	29.2	28.4	28.5
16	51.5	50.8	73.3	78.7	80.3	85.0
32	51.5	101.5	89.6	86.1	89.2	88.0

48	25.8	40.6	42.4	45.2	42.8	48.2
64	17.2	40.6	36.6	45.2	40.7	45.2

DORMRQ with SIDE = 'L', TRANS = 'T', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	2.7	2.3	2.0	1.9
16	.0	2.0	1.6	1.2	1.2	1.2
32	.0	2.0	1.2	1.1	1.0	1.1
48	.0	1.0	1.0	1.2	1.0	1.0
64	.0	1.0	.9	1.0	.9	.9

DORMRQ with SIDE = 'L', TRANS = 'T', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	1.0	4.1	5.4	6.0	4.0	3.6
16	.0	4.1	2.7	2.8	2.5	2.4
32	1.0	2.0	3.2	2.4	2.1	2.2
48	.0	2.0	2.0	2.0	1.8	2.1
64	1.0	2.0	1.8	1.7	1.9	1.6

DORMRQ with SIDE = 'L', TRANS = 'T', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	16.2	16.1	18.1	14.3	14.6
16	8.2	32.5	16.1	15.2	13.5	13.8
32	8.2	32.5	14.3	13.8	16.1	14.3
48	.0	32.5	12.9	13.2	12.5	12.7
64	8.2	16.2	12.9	12.1	12.0	11.8

DORMRQ with SIDE = 'L', TRANS = 'T', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	12.9	20.3	18.3	18.3	18.8	19.4
16	25.8	50.8	42.4	48.9	42.3	43.6
32	51.5	50.8	40.3	46.4	51.0	49.2
48	25.8	50.8	42.4	47.6	44.6	47.3
64	17.2	67.7	38.4	43.1	40.7	44.0

DORMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500

48	51.5	67.7	73.3	78.7	86.8	82.2
64	25.8	67.7	67.2	75.4	73.0	74.9

DORMRQ with SIDE = 'L', TRANS = 'T', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	2.0	8.1	9.0	10.7	10.0
16	.0	2.0	8.1	6.0	8.0	6.3
32	.0	.0	4.0	3.6	3.6	3.9
48	.0	2.0	2.7	2.6	2.5	2.4
64	.0	2.0	2.0	2.3	1.9	1.8

DORMRQ with SIDE = 'L', TRANS = 'T', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	16.1	36.2	16.1	20.1
16	.0	.0	8.1	12.1	12.8	11.1
32	.0	.0	8.1	7.2	7.1	6.3
48	1.0	4.1	5.4	4.5	4.3	4.6
64	.0	4.1	3.2	3.6	3.8	3.3

DORMRQ with SIDE = 'L', TRANS = 'T', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	32.5	32.2	36.2	30.2	26.7
16	.0	32.5	43.0	41.3	46.7	42.2
32	.0	32.5	32.2	36.2	36.7	32.1
48	.0	16.2	25.8	28.9	25.7	25.9
64	.0	16.2	25.8	24.1	23.4	21.7

DORMRQ with SIDE = 'L', TRANS = 'T', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	25.8	29.0	29.9	29.2	29.2	28.5
16	51.5	67.7	73.3	75.4	82.4	78.4
32	51.5	67.7	89.6	82.2	86.8	83.6
48	51.5	67.7	67.2	75.4	84.5	79.6
64	25.8	67.7	62.0	69.6	74.7	73.8

DORMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500

NB						
1	.0	2.5	1.7	1.3	1.2	1.2
16	.0	.0	2.0	1.6	1.5	1.5
32	.6	2.5	1.4	1.3	1.3	1.3
48	.0	2.5	1.4	1.3	1.2	1.2
64	.0	2.5	1.3	1.1	1.1	1.0

DORMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	1.1	2.3	3.0	2.1	2.2	2.0
16	.0	4.5	3.0	2.5	2.9	2.7
32	.0	4.5	3.0	2.4	2.5	2.5
48	.0	4.5	2.3	2.1	2.2	2.2
64	.0	4.5	2.0	1.8	1.9	1.8

DORMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	10.9	9.3	8.9	9.1	8.6
16	8.3	16.4	21.8	16.3	17.4	17.0
32	8.3	16.4	16.3	15.4	14.1	14.3
48	8.3	10.9	16.3	13.3	14.1	12.9
64	8.3	16.4	13.1	12.2	12.1	11.8

DORMRQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	51.1	25.3	21.8	22.6	22.6	22.1
16	25.6	50.6	57.6	48.9	54.5	50.2
32	25.6	67.5	47.4	46.4	48.0	47.4
48	51.1	50.6	47.4	44.2	47.3	45.7
64	25.6	50.6	42.4	42.1	42.9	42.9

DORMRQ with SIDE = 'R', TRANS = 'T', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	1.3	1.4	1.4	1.3	1.2
16	.0	1.3	1.7	1.4	1.5	1.5
32	.0	2.5	1.7	1.4	1.4	1.3
48	.6	1.3	1.4	1.2	1.2	1.2
64	.6	2.5	1.3	1.0	1.0	1.1

NB						
1	.0	.0	.0	11.3	3.6	2.7
16	.0	.0	5.0	5.6	8.0	6.3
32	.0	.0	3.4	3.8	4.5	3.9
48	.6	2.5	3.4	3.2	2.9	2.7
64	.0	2.5	2.0	2.8	2.4	2.1

DORMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	.0	18.1	10.2	7.2	4.5
16	.0	.0	9.0	13.5	12.0	10.2
32	1.1	.0	6.0	8.1	6.6	6.6
48	.0	4.5	4.5	5.1	4.8	4.7
64	.0	4.5	4.5	4.5	4.0	3.9

DORMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	8.3	32.8	32.7	26.7	20.9	16.6
16	.0	.0	43.6	48.9	52.1	42.8
32	.0	32.8	43.6	41.9	34.8	35.4
48	8.3	32.8	32.7	29.3	29.0	29.1
64	.0	32.8	26.1	24.5	24.8	23.3

DORMRQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	25.6	25.3	26.0	25.1	24.9	23.1
16	51.1	67.5	89.6	90.5	94.6	89.7
32	51.1	67.5	89.6	86.2	91.9	86.6
48	51.1	67.5	80.6	86.2	82.5	85.1
64	25.6	67.5	73.3	78.7	76.6	70.7

DORMRQ with SIDE = 'R', TRANS = 'T', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	2.5	10.1	7.5	3.6	2.5
16	.0	2.5	10.1	11.3	6.7	6.3
32	.0	2.5	5.0	5.6	4.5	3.7
48	.0	2.5	3.4	2.8	3.1	2.7
64	.0	2.5	2.5	2.3	2.2	2.2

DORMRQ with SIDE = 'R', TRANS = 'T', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	4.5	2.6	2.3	2.1	2.0
16	.0	4.5	3.6	2.7	2.6	2.7
32	.0	4.5	2.6	2.4	2.3	2.3
48	1.1	4.5	2.3	2.0	2.3	2.1
64	.0	4.5	1.8	2.0	1.9	1.8

DORMRQ with SIDE = 'R', TRANS = 'T', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	8.3	10.9	9.3	8.9	9.3	8.3
16	.0	32.8	18.7	17.3	16.3	16.6
32	.0	16.4	16.3	16.3	14.9	14.8
48	.0	16.4	16.3	13.3	13.4	13.6
64	8.3	16.4	11.9	13.3	11.8	11.8

DORMRQ with SIDE = 'R', TRANS = 'T', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	17.0	25.3	23.7	22.4	22.8	21.9
16	51.1	50.6	53.7	50.3	53.6	49.2
32	51.1	50.6	53.7	44.2	48.0	47.8
48	.0	40.5	44.8	44.2	44.7	45.7
64	25.6	40.5	42.4	44.2	42.3	42.6

*** Speed of DGEQPF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
Type						
2	18.1	15.5	18.2	19.1	20.6	19.7
3	18.1	15.5	17.9	18.3	19.4	19.9

*** Speed of DGEHRD in megaflops ***

ILO = 1, IHI = N

N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	20.8	23.8	22.6	23.5	23.6	24.3
(16, 48)	10.4	41.6	46.7	48.4	49.1	52.5
(32, 128)	20.8	22.2	39.2	44.1	49.6	51.8
(48, 128)	20.8	23.8	36.0	42.0	47.8	50.0
(64, 128)	20.8	20.8	36.0	41.1	45.2	47.4

DORMRQ with SIDE = 'R', TRANS = 'T', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	.0	18.1	13.5	6.6	4.3
16	.0	4.5	.0	10.2	10.3	11.3
32	.0	4.5	6.0	8.1	7.2	6.6
48	.0	4.5	4.5	5.1	4.5	4.5
64	1.1	4.5	3.6	3.7	4.0	3.8

DORMRQ with SIDE = 'R', TRANS = 'T', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	32.8	32.7	29.3	21.7	16.6
16	.0	32.8	43.6	48.9	47.4	47.9
32	.0	32.8	43.6	41.9	37.2	35.4
48	.0	32.8	32.7	29.3	30.7	28.1
64	.0	32.8	21.8	26.7	24.8	23.9

DORMRQ with SIDE = 'R', TRANS = 'T', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	25.6	25.3	26.0	25.9	23.5	22.7
16	51.1	101.3	115.1	106.5	100.5	98.5
32	.0	101.3	73.3	90.5	94.6	86.6
48	51.1	67.5	73.3	78.7	86.9	81.0
64	25.6	50.6	73.3	78.7	76.6	69.8

*** Speed of DGEQPF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
Type						
2	18.1	19.9	24.8	25.6	28.2	28.2
3	18.1	27.9	24.2	27.1	28.5	29.2

*** Speed of DGEHRD in megaflops ***

ILO = 1, IHI = N

N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	41.5	27.7	28.3	27.6	27.9	28.0
(16, 48)	20.8	55.5	59.2	58.4	61.1	61.6
(32, 128)	41.5	27.7	48.4	55.2	58.7	62.2
(48, 128)	20.8	27.7	47.6	52.6	59.2	61.2
(64, 128)	41.5	27.7	46.7	50.5	57.8	59.3

*** Speed of ORTHES in megaflops ***

ILO = 1, IHI = N

N	50	100	200	300	400	500
	20.8	30.3	14.9	9.1	7.6	6.4

*** Speed of DORGHR in megaflops ***

ILO = 1, IHI = N

(NB, NX)	N 50	100	200	300	400	500
(1, 0)	.0	18.6	21.1	19.5	20.7	20.6
(16, 48)	15.9	43.4	52.7	54.1	56.6	60.3
(32, 128)	15.9	21.7	42.2	48.9	59.8	63.8
(48, 128)	15.9	18.6	37.7	47.0	53.7	61.9
(64, 128)	15.9	18.6	35.2	44.1	51.1	51.2

DORMHR with SIDE = 'L', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	8.0	9.0	16.0	16.6
16	.0	2.0	4.0	4.5	4.6	5.5
32	.5	.0	2.0	2.2	2.9	2.5
48	.0	2.0	1.6	1.5	1.5	1.7
64	.0	2.0	1.1	1.3	1.0	1.2

DORMHR with SIDE = 'L', TRANS = 'N', N = 2

NB \ M	50	100	200	300	400	500
1	.0	.0	.0	35.9	32.0	25.0
16	1.0	4.0	8.0	7.2	9.1	10.0
32	1.0	4.0	4.0	4.5	4.9	4.8
48	.0	2.0	2.7	3.3	3.2	3.7
64	1.0	4.0	2.0	2.6	2.3	2.4

DORMHR with SIDE = 'L', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	7.9	15.9	25.5	24.0	28.4	26.6
16	.0	31.8	42.6	35.9	34.1	42.1
32	.0	31.8	25.5	26.1	28.4	28.5
48	.0	15.9	18.2	24.0	19.7	20.5
64	.0	31.8	12.8	16.9	15.0	16.3

*** Speed of ORTHES in megaflops ***

ILO = 1, IHI = N

N	50	100	200	300	400	500
	41.5	37.0	38.6	37.3	37.0	36.3

*** Speed of DORGHR in megaflops ***

ILO = 1, IHI = N

(NB, NX)	N 50	100	200	300	400	500
(1, 0)	15.9	21.7	29.3	29.5	30.4	29.9
(16, 48)	15.9	65.2	62.0	83.1	84.0	86.4
(32, 128)	.0	32.6	65.9	85.1	97.5	104.4
(48, 128)	15.9	26.1	62.0	79.4	92.2	97.6
(64, 128)	15.9	26.1	62.0	71.5	84.0	93.2

DORMHR with SIDE = 'L', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	.0	18.0	16.0	25.0
16	.0	.0	8.0	6.0	8.0	8.3
32	.0	2.0	8.0	4.5	4.6	4.5
48	.0	2.0	4.0	2.6	3.6	3.3
64	.0	2.0	2.0	2.2	2.7	2.5

DORMHR with SIDE = 'L', TRANS = 'N', N = 2

NB \ M	50	100	200	300	400	500
1	.0	.0	16.0	35.9	63.9	33.3
16	.0	4.0	16.0	12.0	12.8	16.6
32	.0	2.0	8.0	7.2	8.0	7.7
48	.0	4.0	5.3	5.1	5.8	6.7
64	.0	4.0	4.0	4.0	4.9	5.3

DORMHR with SIDE = 'L', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	.0	.0	63.8	57.5	63.9	53.3
16	7.9	31.8	31.9	71.9	56.8	57.1
32	7.9	31.8	42.6	47.9	46.5	47.0
48	7.9	31.8	31.9	35.9	36.5	36.3
64	.0	15.9	21.3	31.9	30.1	28.5

DORMHR with SIDE = 'L', TRANS = 'N', N = 100

M / NB	50	100	200	300	400	500
1	24.7	19.9	17.7	21.1	20.5	20.3
16	49.5	49.7	66.5	54.5	60.3	58.1
32	24.7	39.8	57.0	56.2	61.5	64.0
48	24.7	33.2	49.9	52.9	51.5	54.3
64	24.7	49.7	44.3	47.3	49.9	50.5

DORMHR with SIDE = 'L', TRANS = 'T', N = 1

M / NB	50	100	200	300	400	500
1	.0	2.0	.0	9.0	16.0	16.6
16	.0	.0	8.0	6.0	5.3	5.0
32	.0	1.0	2.7	2.6	2.5	2.6
48	.0	2.0	1.6	1.5	1.6	1.7
64	.0	1.0	1.1	1.1	1.1	1.2

DORMHR with SIDE = 'L', TRANS = 'T', N = 2

M / NB	50	100	200	300	400	500
1	.0	.0	8.0	35.9	21.3	25.0
16	.0	4.0	8.0	9.0	9.1	10.0
32	.0	4.0	4.0	5.1	4.9	4.8
48	1.0	2.0	2.7	3.0	2.9	3.3
64	.0	2.0	2.3	2.4	2.3	2.4

DORMHR with SIDE = 'L', TRANS = 'T', N = 16

M / NB	50	100	200	300	400	500
1	.0	31.8	25.5	24.0	26.9	27.6
16	7.9	31.8	31.9	35.9	34.1	38.1
32	7.9	15.9	25.5	26.1	26.9	27.6
48	7.9	15.9	14.2	16.9	21.3	18.6
64	7.9	10.6	14.2	16.0	16.0	16.0

DORMHR with SIDE = 'L', TRANS = 'T', N = 100

M / NB	50	100	200	300	400	500
1	16.5	18.1	19.9	21.9	20.6	19.4
16	24.7	39.8	53.2	54.5	58.1	58.8
32	24.7	39.8	57.0	54.5	60.3	65.7
48	24.7	49.7	49.9	54.5	57.1	54.9
64	24.7	33.2	42.0	43.8	49.2	53.1

DORMHR with SIDE = 'L', TRANS = 'N', N = 100

M / NB	50	100	200	300	400	500
1	24.7	28.4	29.6	30.5	30.2	29.9
16	49.5	66.3	88.7	81.7	86.4	86.1
32	49.5	66.3	99.7	99.8	91.3	101.9
48	49.5	66.3	79.8	89.8	91.3	96.1
64	49.5	66.3	72.5	81.7	86.4	92.5

DORMHR with SIDE = 'L', TRANS = 'T', N = 1

M / NB	50	100	200	300	400	500
1	.0	.0	.0	18.0	32.0	25.0
16	.0	.0	8.0	9.0	8.0	8.3
32	.0	.0	4.0	3.6	4.6	4.5
48	.5	.0	2.7	3.6	2.9	2.9
64	.0	2.0	2.7	2.6	2.5	2.5

DORMHR with SIDE = 'L', TRANS = 'T', N = 2

M / NB	50	100	200	300	400	500
1	.0	4.0	.0	35.9	32.0	49.9
16	.0	.0	16.0	18.0	16.0	16.6
32	.0	.0	8.0	7.2	10.7	8.3
48	.0	4.0	5.3	7.2	5.8	6.2
64	.0	4.0	5.3	4.5	4.6	5.0

DORMHR with SIDE = 'L', TRANS = 'T', N = 16

M / NB	50	100	200	300	400	500
1	.0	31.8	63.8	57.5	51.1	49.9
16	.0	.0	63.8	57.5	56.8	66.6
32	.0	31.8	42.6	47.9	56.8	49.9
48	.0	31.8	31.9	35.9	39.3	38.1
64	7.9	31.8	31.9	31.9	30.1	27.6

DORMHR with SIDE = 'L', TRANS = 'T', N = 100

M / NB	50	100	200	300	400	500
1	24.7	28.4	28.5	29.9	29.9	29.7
16	49.5	99.5	79.8	85.6	88.8	84.7
32	49.5	99.5	99.7	89.8	91.3	104.1
48	49.5	99.5	88.7	85.6	94.0	96.1
64	49.5	99.5	72.5	85.6	86.4	92.5

DORMHR with SIDE = 'R', TRANS = 'N', M = 1

NB \ N	50	100	200	300	400	500
1	.0	.0	3.3	2.5	2.9	2.5
16	.6	2.5	5.0	5.6	4.0	5.7
32	.0	2.5	2.5	2.8	3.1	3.1
48	.0	2.5	2.0	1.7	2.2	1.9
64	.6	1.2	1.7	1.5	1.5	1.6

DORMHR with SIDE = 'R', TRANS = 'N', M = 2

NB \ N	50	100	200	300	400	500
1	.0	.0	9.0	4.5	4.0	4.2
16	.0	.0	9.0	10.1	10.3	8.6
32	1.1	4.5	4.5	5.0	4.8	5.3
48	.0	4.5	3.6	3.4	3.0	3.3
64	.0	2.2	2.2	2.1	2.6	2.7

DORMHR with SIDE = 'R', TRANS = 'N', M = 16

NB \ N	50	100	200	300	400	500
1	.0	16.1	16.2	12.1	12.4	12.5
16	8.0	32.2	32.3	36.4	39.9	36.9
32	8.0	16.1	25.9	29.2	25.9	31.2
48	.0	16.1	18.5	18.2	21.6	20.3
64	8.0	16.1	16.2	16.2	15.3	15.3

DORMHR with SIDE = 'R', TRANS = 'N', M = 100

NB \ N	50	100	200	300	400	500
1	24.6	28.4	27.5	26.1	26.0	24.6
16	24.6	66.2	61.4	66.6	68.1	66.7
32	49.1	39.7	57.0	62.0	62.7	58.9
48	24.6	39.7	49.9	56.2	55.2	60.3
64	24.6	49.6	44.3	47.3	48.5	49.5

DORMHR with SIDE = 'R', TRANS = 'T', M = 1

NB \ N	50	100	200	300	400	500
1	.6	.0	1.7	2.0	2.7	2.6
16	.0	2.5	10.0	4.5	5.0	5.7
32	.0	2.5	2.5	2.8	2.9	3.1
48	.6	2.5	2.0	1.7	1.8	1.9
64	.0	1.2	1.4	1.4	1.5	1.7

DORMHR with SIDE = 'R', TRANS = 'T', M = 2

DORMHR with SIDE = 'R', TRANS = 'N', M = 1

NB \ N	50	100	200	300	400	500
1	.0	.0	.0	22.4	13.3	15.6
16	.0	2.5	10.0	7.5	8.0	8.9
32	.0	2.5	5.0	5.6	4.4	5.2
48	.0	.0	3.3	3.7	3.6	3.9
64	.0	2.5	2.5	3.2	3.1	2.7

DORMHR with SIDE = 'R', TRANS = 'N', M = 2

NB \ N	50	100	200	300	400	500
1	.0	4.5	17.9	40.4	23.9	28.1
16	.0	.0	17.9	13.5	14.4	16.0
32	.0	4.5	9.0	10.1	10.3	9.4
48	.0	4.5	6.0	6.7	7.2	6.6
64	.0	4.5	4.5	5.0	5.5	5.1

DORMHR with SIDE = 'R', TRANS = 'N', M = 16

NB \ N	50	100	200	300	400	500
1	.0	32.2	43.1	41.6	34.6	33.8
16	.0	32.2	43.1	58.3	57.6	54.1
32	8.0	32.2	43.1	41.6	39.9	47.7
48	.0	32.2	32.3	36.4	39.9	35.3
64	.0	16.1	25.9	32.4	30.5	31.2

DORMHR with SIDE = 'R', TRANS = 'N', M = 100

NB \ N	50	100	200	300	400	500
1	49.1	28.4	25.7	27.2	26.2	26.1
16	.0	66.2	99.7	89.9	103.2	108.7
32	49.1	99.2	79.8	94.7	86.5	96.2
48	49.1	66.2	79.8	89.9	91.4	92.6
64	49.1	99.2	72.5	81.7	84.2	84.8

DORMHR with SIDE = 'R', TRANS = 'T', M = 1

NB \ N	50	100	200	300	400	500
1	.0	.0	.0	11.2	20.0	20.8
16	.0	.0	10.0	11.2	10.0	10.4
32	.0	.0	5.0	5.6	5.7	5.7
48	.0	2.5	5.0	4.5	4.0	4.2
64	.0	2.5	3.3	3.2	3.1	3.1

DORMHR with SIDE = 'R', TRANS = 'T', M = 2

N / NB	50	100	200	300	400	500
1	.0	4.5	3.6	4.0	4.2	4.5
16	.0	4.5	9.0	8.1	9.0	8.6
32	.0	4.5	4.5	5.0	5.5	5.1
48	1.1	4.5	2.6	4.0	3.4	3.7
64	.0	2.2	2.2	2.1	2.3	2.6

DORMHR with SIDE = 'R', TRANS = 'T', M = 16

N / NB	50	100	200	300	400	500
1	.0	16.1	14.4	11.7	11.8	12.3
16	.0	32.2	25.9	41.6	39.9	38.6
32	.0	32.2	25.9	26.5	27.3	28.0
48	8.0	16.1	18.5	17.1	20.0	20.8
64	.0	16.1	16.2	13.3	14.8	15.6

DORMHR with SIDE = 'R', TRANS = 'T', M = 100

N / NB	50	100	200	300	400	500
1	24.6	28.4	24.9	25.7	26.0	26.1
16	49.1	49.6	66.5	64.2	69.6	67.6
32	24.6	66.2	57.0	59.9	61.5	62.5
48	24.6	39.7	49.9	56.2	55.2	55.0
64	16.4	49.6	44.3	47.3	48.5	46.8

*** Speed of DSYTRD in megaflops ***

DSYTRD with UPLO = 'U'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	17.5	34.2	36.0	40.3	38.3	40.1
(16, 48)	.0	27.4	33.8	34.6	34.8	35.1
(32, 128)	.0	34.2	29.2	33.9	33.2	33.8
(48, 128)	17.5	45.6	27.0	29.3	30.9	32.0
(64, 128)	.0	34.2	26.4	26.9	28.9	31.1

DSYTRD with UPLO = 'L'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	.0	34.2	36.0	36.7	40.1	40.3
(16, 48)	17.5	22.8	31.8	32.1	35.1	35.6
(32, 128)	17.5	22.8	30.9	31.0	31.7	33.6
(48, 128)	.0	34.2	27.7	29.5	31.6	32.8
(64, 128)	17.5	22.8	23.5	27.1	28.3	30.6

N / NB	50	100	200	300	400	500
1	.0	.0	17.9	13.5	35.9	22.5
16	.0	.0	17.9	13.5	14.4	14.0
32	.0	.0	9.0	10.1	10.3	9.4
48	1.1	2.2	6.0	8.1	6.0	6.6
64	.0	4.5	4.5	4.5	5.1	5.1

DORMHR with SIDE = 'R', TRANS = 'T', M = 16

N / NB	50	100	200	300	400	500
1	8.0	32.2	32.3	41.6	39.9	35.3
16	8.0	.0	64.7	58.3	57.6	54.1
32	.0	32.2	43.1	48.6	47.2	47.7
48	8.0	32.2	32.3	36.4	34.6	36.9
64	.0	32.2	21.6	29.2	28.8	28.0

DORMHR with SIDE = 'R', TRANS = 'T', M = 100

N / NB	50	100	200	300	400	500
1	24.6	24.8	25.7	26.1	26.0	26.6
16	49.1	99.2	88.7	99.9	100.0	104.2
32	.0	66.2	99.7	99.9	97.0	104.2
48	49.1	66.2	88.7	89.9	88.9	91.0
64	24.6	66.2	79.8	78.2	84.2	86.2

*** Speed of DSYTRD in megaflops ***

DSYTRD with UPLO = 'U'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	17.5	45.6	63.6	56.7	59.2	59.8
(16, 48)	.0	45.6	56.9	56.7	58.8	58.4
(32, 128)	.0	68.4	51.5	46.6	50.8	51.7
(48, 128)	17.5	68.4	45.0	43.2	45.9	44.8
(64, 128)	.0	45.6	37.3	40.3	42.3	42.8

DSYTRD with UPLO = 'L'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	17.5	45.6	54.0	55.9	61.4	58.8
(16, 48)	17.5	45.6	56.9	59.5	58.4	57.2
(32, 128)	.0	68.4	47.0	49.1	50.5	51.1
(48, 128)	.0	68.4	45.0	44.8	47.5	47.2
(64, 128)	17.5	68.4	37.3	41.7	43.2	44.8

*** Speed of TRED1 in megaflops ***

N	50	100	200	300	400	500
	17.5	34.2	32.7	36.7	38.2	39.1

*** Speed of DORGTR in megaflops ***

DORGTR with UPLO = 'U'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	.0	21.7	21.1	20.8	20.6	20.7
(16, 48)	15.9	65.2	50.2	51.8	57.7	58.4
(32, 128)	15.9	18.6	42.2	53.3	58.1	65.1
(48, 128)	.0	21.7	40.6	47.6	54.0	59.9
(64, 128)	15.9	18.6	39.1	44.7	52.1	54.0

DORGTR with UPLO = 'L'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	15.9	18.6	19.9	19.9	20.7	21.0
(16, 48)	.0	43.4	50.2	53.3	57.3	60.6
(32, 128)	15.9	18.6	43.9	51.8	60.2	64.6
(48, 128)	.0	18.6	37.7	46.4	58.1	61.0
(64, 128)	15.9	26.1	33.0	42.5	50.2	53.3

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	.0	2.0	8.0	18.0	10.7	16.6
16	.0	2.0	8.0	3.6	5.3	4.5
32	.0	1.0	2.0	2.2	2.3	2.6
48	.0	2.0	1.3	1.6	1.6	1.8
64	.0	2.0	1.3	1.3	1.3	1.2

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	8.0	18.0	16.0	16.6
16	.5	2.0	8.0	4.5	6.4	5.0
32	.0	2.0	2.7	2.2	2.7	2.5
48	.5	2.0	1.6	1.6	1.7	1.8
64	.0	1.0	1.0	1.2	1.2	1.2

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 2

M	50	100	200	300	400	500

*** Speed of TRED1 in megaflops ***

N	50	100	200	300	400	500
	.0	34.2	49.1	50.4	50.2	51.7

*** Speed of DORGTR in megaflops ***

DORGTR with UPLO = 'U'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	15.9	26.1	30.1	29.5	29.9	30.7
(16, 48)	.0	43.4	75.3	83.1	87.5	86.4
(32, 128)	15.9	32.6	65.9	87.1	96.4	105.7
(48, 128)	.0	26.1	62.0	81.2	90.3	96.5
(64, 128)	15.9	21.7	58.6	71.5	82.4	87.8

DORGTR with UPLO = 'L'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	.0	26.1	29.3	30.0	30.4	30.3
(16, 48)	.0	43.4	75.3	85.1	88.4	88.7
(32, 128)	15.9	32.6	65.9	89.3	101.0	105.0
(48, 128)	15.9	32.6	62.0	79.4	90.3	99.4
(64, 128)	.0	32.6	58.6	74.4	84.9	89.7

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	8.0	18.0	32.0	16.6
16	.0	2.0	8.0	6.0	8.0	8.3
32	.0	2.0	4.0	6.0	5.3	4.2
48	.0	.0	2.7	3.6	3.6	3.6
64	.0	2.0	2.7	2.6	2.5	2.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	8.0	18.0	32.0	25.0
16	.5	.0	4.0	9.0	8.0	8.3
32	.0	2.0	4.0	4.5	4.0	4.5
48	.0	2.0	4.0	3.0	3.2	3.1
64	.0	2.0	2.7	2.0	2.3	2.5

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 2

M	50	100	200	300	400	500

NB						
1	.0	.0	16.0	18.0	21.3	25.0
16	.0	.0	8.0	12.0	8.0	10.0
32	.0	4.0	4.0	4.5	4.9	5.0
48	.0	2.0	2.7	3.6	3.4	3.6
64	.0	4.0	2.7	2.8	2.7	2.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 2

M / NB	50	100	200	300	400	500
1	.0	4.0	16.0	35.9	21.3	25.0
16	.0	4.0	8.0	9.0	12.8	9.1
32	.0	4.0	5.3	4.5	4.9	4.8
48	.0	4.0	3.2	3.0	3.2	3.6
64	.0	2.0	2.0	2.2	2.4	2.3

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 16

M / NB	50	100	200	300	400	500
1	.0	31.8	25.5	24.0	26.9	27.6
16	7.9	31.8	31.9	35.9	42.6	40.0
32	.0	15.9	25.5	26.1	30.1	30.7
48	.0	15.9	18.2	20.5	21.3	22.2
64	.0	15.9	14.2	16.9	16.5	17.0

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 16

M / NB	50	100	200	300	400	500
1	7.9	15.9	21.3	26.1	25.6	26.6
16	7.9	31.8	31.9	31.9	36.5	40.0
32	.0	15.9	25.5	26.1	26.9	27.6
48	.0	15.9	18.2	18.0	20.5	20.5
64	7.9	15.9	14.2	16.0	15.0	16.3

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 100

M / NB	50	100	200	300	400	500
1	16.5	19.9	21.0	19.7	21.0	21.6
16	24.7	49.7	53.2	59.9	61.5	61.7
32	49.5	49.7	53.2	58.0	59.2	61.7
48	49.5	49.7	49.9	51.3	54.2	56.1
64	16.5	49.7	46.9	49.9	49.9	46.7

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 100

M / NB	50	100	200	300	400	500

NB						
1	.0	.0	16.0	18.0	32.0	33.3
16	.0	.0	8.0	18.0	16.0	16.6
32	.0	4.0	8.0	7.2	9.1	10.0
48	.0	4.0	5.3	7.2	7.1	6.7
64	.0	4.0	5.3	5.1	4.6	4.8

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 2

M / NB	50	100	200	300	400	500
1	.0	.0	16.0	35.9	32.0	33.3
16	.0	4.0	16.0	12.0	12.8	16.6
32	.0	.0	8.0	7.2	8.0	8.3
48	.0	4.0	5.3	6.0	6.4	6.2
64	1.0	4.0	5.3	4.5	4.3	5.0

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 16

M / NB	50	100	200	300	400	500
1	.0	31.8	63.8	57.5	56.8	49.9
16	.0	31.8	42.6	71.9	73.1	57.1
32	.0	.0	42.6	47.9	51.1	53.3
48	.0	.0	31.9	35.9	36.5	42.1
64	.0	31.8	25.5	31.9	32.0	27.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 16

M / NB	50	100	200	300	400	500
1	.0	31.8	42.6	71.9	63.9	53.3
16	.0	31.8	63.8	71.9	63.9	61.5
32	.0	31.8	63.8	41.1	46.5	47.0
48	.0	31.8	31.9	41.1	36.5	40.0
64	.0	31.8	31.9	28.8	30.1	29.6

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 100

M / NB	50	100	200	300	400	500
1	49.5	28.4	30.7	31.0	30.4	31.0
16	49.5	66.3	88.7	81.7	84.1	87.6
32	49.5	66.3	88.7	89.8	96.8	97.9
48	49.5	66.3	79.8	85.6	91.3	86.1
64	49.5	66.3	79.8	81.7	88.8	97.9

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 100

M / NB	50	100	200	300	400	500

1	16.5	18.1	20.5	20.7	20.6	20.6
16	24.7	39.8	53.2	56.2	58.1	58.1
32	49.5	49.7	57.0	62.0	62.7	64.9
48	24.7	49.7	46.9	52.9	56.1	56.8
64	16.5	33.2	38.0	47.3	49.9	49.5

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 1

M / NB	50	100	200	300	400	500
1	.0	.0	.0	18.0	16.0	16.6
16	.0	2.0	4.0	6.0	4.6	5.5
32	.0	.0	2.7	2.6	2.5	2.9
48	.5	2.0	2.0	1.8	1.5	1.7
64	.0	.7	1.1	1.3	1.4	1.4

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 1

M / NB	50	100	200	300	400	500
1	.0	.0	8.0	6.0	16.0	12.5
16	.0	.0	4.0	4.5	4.6	5.5
32	.0	2.0	2.0	2.6	2.3	2.5
48	.5	2.0	1.1	1.8	1.7	1.7
64	.0	1.0	1.3	1.2	1.1	1.2

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 2

M / NB	50	100	200	300	400	500
1	1.0	4.0	16.0	35.9	32.0	20.0
16	.0	.0	8.0	9.0	12.8	9.1
32	1.0	4.0	5.3	5.1	4.9	5.3
48	1.0	2.0	4.0	3.6	3.4	3.4
64	1.0	2.0	2.7	3.3	2.7	2.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 2

M / NB	50	100	200	300	400	500
1	.0	.0	16.0	35.9	21.3	20.0
16	1.0	4.0	8.0	9.0	8.0	10.0
32	1.0	4.0	8.0	4.5	5.8	5.0
48	1.0	2.0	3.2	3.0	3.4	3.3
64	.0	4.0	2.0	2.1	2.3	2.3

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 16

M / NB	50	100	200	300	400	500
1	.0	31.8	25.5	26.1	25.6	28.5

1	24.7	28.4	29.6	29.9	31.3	30.6
16	.0	66.3	79.8	81.7	86.4	87.6
32	49.5	99.5	99.7	94.6	99.9	104.1
48	.0	99.5	79.8	89.8	94.0	97.9
64	24.7	66.3	72.5	81.7	78.0	83.2

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 1

M / NB	50	100	200	300	400	500
1	.0	.0	.0	18.0	16.0	25.0
16	.0	.0	8.0	6.0	8.0	10.0
32	.0	.0	4.0	9.0	4.6	5.0
48	.0	2.0	2.7	3.6	3.6	3.3
64	.0	.0	2.0	2.6	2.7	2.4

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 1

M / NB	50	100	200	300	400	500
1	.0	2.0	.0	18.0	32.0	25.0
16	.0	2.0	8.0	9.0	8.0	8.3
32	.0	2.0	4.0	4.5	4.6	4.5
48	.0	.0	2.7	3.0	3.2	3.1
64	.0	2.0	2.0	3.0	2.3	2.3

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 2

M / NB	50	100	200	300	400	500
1	.0	.0	.0	35.9	32.0	33.3
16	1.0	.0	16.0	9.0	12.8	14.3
32	.0	4.0	8.0	9.0	9.1	10.0
48	1.0	4.0	8.0	5.1	6.4	6.7
64	.0	4.0	5.3	5.1	5.3	5.3

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 2

M / NB	50	100	200	300	400	500
1	.0	.0	.0	18.0	32.0	33.3
16	.0	.0	16.0	18.0	16.0	14.3
32	1.0	4.0	16.0	12.0	9.1	9.1
48	1.0	4.0	5.3	7.2	6.4	6.2
64	.0	4.0	4.0	5.1	4.9	5.3

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 16

M / NB	50	100	200	300	400	500
1	7.9	31.8	42.6	47.9	51.1	49.9

16	.0	31.8	42.6	41.1	36.5	40.0
32	7.9	10.6	25.5	26.1	26.9	27.6
48	7.9	31.8	21.3	20.5	21.3	23.5
64	.0	31.8	16.0	18.0	17.6	16.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 16

M / NB	50	100	200	300	400	500
1	.0	31.8	25.5	28.8	28.4	26.6
16	.0	31.8	31.9	35.9	39.3	42.1
32	7.9	31.8	25.5	26.1	28.4	28.5
48	7.9	10.6	18.2	22.1	22.2	21.6
64	.0	10.6	16.0	16.0	15.5	15.7

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 100

M / NB	50	100	200	300	400	500
1	16.5	22.1	21.0	20.4	21.0	20.1
16	.0	66.3	57.0	52.9	62.7	58.1
32	24.7	49.7	57.0	56.2	61.5	64.0
48	24.7	39.8	49.9	52.9	57.1	58.8
64	24.7	49.7	39.9	52.9	49.9	52.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 100

M / NB	50	100	200	300	400	500
1	16.5	19.9	20.5	20.2	20.8	20.6
16	49.5	49.7	53.2	52.9	54.2	60.9
32	24.7	49.7	57.0	59.9	63.9	64.0
48	49.5	49.7	46.9	49.9	57.1	56.1
64	16.5	39.8	46.9	47.3	50.7	49.0

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	.6	2.5	3.3	2.0	2.5	2.1
16	.0	2.5	10.0	5.6	5.7	4.8
32	.0	1.2	2.5	2.8	3.1	3.1
48	.0	2.5	1.7	2.0	2.1	2.2
64	.6	2.5	1.4	1.6	1.6	1.7

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	.0	2.5	5.0	2.8	2.7	2.7
16	.0	2.5	5.0	5.6	5.7	5.2

16	.0	.0	63.8	57.5	56.8	72.7
32	7.9	.0	63.8	47.9	51.1	47.0
48	.0	31.8	31.9	41.1	39.3	36.3
64	7.9	31.8	31.9	31.9	32.0	29.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 16

M / NB	50	100	200	300	400	500
1	.0	.0	63.8	57.5	56.8	57.1
16	.0	.0	63.8	57.5	63.9	61.5
32	.0	31.8	42.6	57.5	51.1	49.9
48	.0	31.8	31.9	35.9	42.6	34.7
64	.0	15.9	25.5	26.1	30.1	32.0

DORMTR with SIDE = 'L', UPLO = 'U', TRANS = 'T', N = 100

M / NB	50	100	200	300	400	500
1	24.7	28.4	33.2	30.5	30.4	30.6
16	49.5	66.3	79.8	78.1	84.1	86.1
32	.0	99.5	88.7	89.8	99.9	94.2
48	49.5	66.3	88.7	85.6	94.0	92.5
64	24.7	66.3	72.5	89.8	81.9	87.6

DORMTR with SIDE = 'L', UPLO = 'L', TRANS = 'T', N = 100

M / NB	50	100	200	300	400	500
1	49.5	28.4	30.7	31.0	32.3	30.1
16	49.5	66.3	88.7	85.6	86.4	89.2
32	49.5	66.3	88.7	94.6	103.1	104.1
48	.0	99.5	88.7	89.8	96.8	92.5
64	24.7	66.3	72.5	81.7	91.3	89.2

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	.0	.0	10.0	11.2	13.3	15.6
16	.0	.0	10.0	11.2	10.0	8.9
32	.6	2.5	10.0	7.5	6.7	5.7
48	.0	2.5	3.3	5.6	4.0	4.2
64	.0	2.5	2.5	3.7	3.6	2.8

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	.0	.0	10.0	22.4	20.0	15.6
16	.0	.0	10.0	7.5	10.0	8.9

32	.0	2.5	2.5	2.8	2.9	3.0
48	.6	2.5	1.7	2.0	2.1	2.0
64	.0	2.5	1.1	1.5	1.3	1.5

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 2

N NB	50	100	200	300	400	500
1	.0	4.5	6.0	4.0	3.8	3.9
16	1.1	.0	6.0	10.1	8.0	9.4
32	1.1	4.5	4.5	5.0	5.1	5.9
48	.0	4.5	3.0	3.4	4.0	3.5
64	.0	.0	3.0	3.1	2.7	2.4

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 2

N NB	50	100	200	300	400	500
1	.0	.0	4.5	4.0	3.8	4.2
16	.0	4.5	17.9	8.1	9.0	9.4
32	1.1	4.5	4.5	4.5	4.8	4.9
48	1.1	4.5	3.0	2.7	3.4	3.5
64	.0	4.5	2.6	2.4	2.4	2.4

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 16

N NB	50	100	200	300	400	500
1	8.0	10.7	14.4	12.1	11.5	10.5
16	.0	32.2	32.3	32.4	34.6	36.9
32	.0	32.2	25.9	26.5	30.5	28.0
48	.0	16.1	21.6	22.4	20.7	23.2
64	8.0	16.1	16.2	17.1	15.7	15.9

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 16

N NB	50	100	200	300	400	500
1	8.0	16.1	14.4	10.8	11.8	12.1
16	4.0	32.2	32.3	32.4	43.2	40.5
32	8.0	32.2	25.9	26.5	30.5	26.2
48	8.0	16.1	16.2	20.8	21.6	20.8
64	.0	10.7	14.4	15.3	15.3	15.6

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 100

N NB	50	100	200	300	400	500
1	24.6	28.4	24.9	24.6	25.0	25.9
16	24.6	49.6	61.4	74.9	68.1	65.8
32	49.1	49.6	46.9	56.2	59.3	62.5

32	.0	2.5	5.0	7.5	5.7	5.7
48	.6	2.5	3.3	3.2	4.4	3.9
64	.0	2.5	3.3	3.2	3.1	3.1

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 2

N NB	50	100	200	300	400	500
1	.0	.0	17.9	20.2	35.9	28.1
16	.0	.0	17.9	13.5	18.0	12.5
32	.0	.0	9.0	13.5	9.0	10.2
48	.0	4.5	4.5	6.7	6.0	7.0
64	.0	.0	6.0	5.0	5.5	5.6

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 2

N NB	50	100	200	300	400	500
1	.0	.0	17.9	40.4	23.9	28.1
16	1.1	.0	9.0	13.5	14.4	12.5
32	.0	.0	9.0	10.1	9.0	9.4
48	.0	4.5	6.0	6.7	8.0	6.6
64	.0	4.5	4.5	5.0	5.1	4.9

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 16

N NB	50	100	200	300	400	500
1	8.0	.0	32.3	32.4	34.6	33.8
16	.0	.0	64.7	48.6	57.6	54.1
32	.0	32.2	43.1	48.6	51.9	47.7
48	8.0	32.2	32.3	36.4	37.1	38.6
64	8.0	32.2	32.3	32.4	32.4	28.0

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 16

N NB	50	100	200	300	400	500
1	.0	.0	32.3	41.6	37.1	35.3
16	.0	32.2	64.7	58.3	51.9	62.4
32	.0	32.2	43.1	41.6	57.6	45.0
48	.0	32.2	32.3	36.4	37.1	33.8
64	.0	32.2	32.3	26.5	32.4	30.0

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 100

N NB	50	100	200	300	400	500
1	24.6	24.8	27.5	26.4	26.9	26.6
16	49.1	66.2	88.7	94.7	103.2	100.0
32	.0	99.2	88.7	94.7	94.1	108.7

48	49.1	39.7	53.2	56.2	57.1	58.9
64	24.6	49.6	49.9	50.0	49.2	52.1

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 100

N / NB	50	100	200	300	400	500
1	24.6	28.4	25.7	24.3	26.4	25.4
16	49.1	66.2	66.5	64.2	66.7	69.5
32	49.1	49.6	57.0	59.9	66.7	60.3
48	49.1	49.6	49.9	52.9	59.3	58.2
64	24.6	33.1	44.3	50.0	50.8	50.5

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 1

N / NB	50	100	200	300	400	500
1	.0	.0	3.3	2.8	2.7	2.4
16	.0	2.5	5.0	4.5	6.7	5.7
32	.0	2.5	2.5	2.8	3.1	3.1
48	.6	1.2	2.0	2.0	2.1	2.1
64	.0	1.2	1.4	1.7	1.7	1.7

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 1

N / NB	50	100	200	300	400	500
1	.0	.0	3.3	2.5	2.7	2.7
16	.6	2.5	5.0	5.6	5.0	6.2
32	.0	2.5	2.5	2.5	3.1	3.1
48	.0	1.2	2.0	2.0	2.1	2.2
64	.0	1.2	1.4	1.5	1.4	1.5

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 2

N / NB	50	100	200	300	400	500
1	.0	.0	6.0	3.7	4.0	3.7
16	.0	.0	9.0	8.1	8.0	8.6
32	.0	4.5	9.0	5.8	5.5	5.1
48	1.1	4.5	3.6	3.7	3.8	3.7
64	.0	2.2	2.6	2.7	2.7	2.6

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 2

N / NB	50	100	200	300	400	500
1	.0	4.5	6.0	4.0	4.0	4.2
16	.0	4.5	6.0	8.1	10.3	9.4
32	.0	.0	4.5	5.8	5.5	4.9
48	.0	4.5	3.6	2.9	3.6	3.4

48	49.1	99.2	79.8	85.6	91.4	96.2
64	24.6	66.2	72.5	81.7	88.9	87.8

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 100

N / NB	50	100	200	300	400	500
1	24.6	24.8	26.6	26.4	26.2	26.2
16	49.1	198.5	99.7	99.9	106.7	106.4
32	24.6	99.2	79.8	99.9	97.0	100.0
48	24.6	66.2	88.7	85.6	91.4	91.0
64	16.4	66.2	79.8	81.7	80.0	84.8

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 1

N / NB	50	100	200	300	400	500
1	.0	.0	.0	22.4	20.0	15.6
16	.0	2.5	10.0	11.2	10.0	12.5
32	.0	.0	5.0	7.5	5.7	5.7
48	.6	.0	5.0	4.5	4.4	4.2
64	.0	2.5	2.5	3.2	3.1	3.3

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 1

N / NB	50	100	200	300	400	500
1	.0	.0	.0	11.2	20.0	15.6
16	.0	.0	10.0	11.2	13.3	10.4
32	.0	.0	5.0	5.6	5.7	5.7
48	.0	2.5	3.3	4.5	4.0	3.9
64	.0	2.5	3.3	2.8	3.3	3.1

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 2

N / NB	50	100	200	300	400	500
1	.0	2.2	17.9	40.4	23.9	28.1
16	.0	4.5	9.0	13.5	14.4	16.0
32	.0	4.5	6.0	8.1	9.0	9.4
48	.0	4.5	9.0	6.7	7.2	6.6
64	.0	4.5	4.5	4.5	5.1	5.9

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 2

N / NB	50	100	200	300	400	500
1	.0	4.5	17.9	13.5	23.9	37.4
16	.0	.0	17.9	13.5	14.4	16.0
32	1.1	4.5	9.0	8.1	9.0	8.6
48	1.1	4.5	6.0	6.7	5.5	6.6

64	.0	4.5	2.0	2.4	2.6	2.5

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 16

NB \ N	50	100	200	300	400	500
1	.0	32.2	14.4	11.7	11.0	10.4
16	8.0	16.1	32.3	48.6	37.1	40.5
32	8.0	16.1	32.3	29.2	27.3	29.0
48	8.0	32.2	21.6	20.8	20.7	23.8
64	.0	32.2	16.2	17.1	15.7	15.3

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 16

NB \ N	50	100	200	300	400	500
1	.0	16.1	12.9	12.7	12.7	12.1
16	.0	32.2	43.1	36.4	39.9	33.8
32	.0	32.2	25.9	26.5	25.9	27.0
48	8.0	16.1	18.5	19.4	21.6	20.8
64	8.0	10.7	14.4	15.3	13.7	15.0

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 100

NB \ N	50	100	200	300	400	500
1	16.4	24.8	25.7	25.0	24.8	26.2
16	.0	49.6	66.5	64.2	66.7	65.0
32	49.1	66.2	57.0	58.0	61.5	61.0
48	49.1	39.7	53.2	54.5	55.2	58.9
64	16.4	39.7	46.9	52.9	47.8	51.0

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 100

NB \ N	50	100	200	300	400	500
1	24.6	24.8	25.7	26.1	26.2	25.5
16	49.1	66.2	66.5	62.0	71.1	69.5
32	.0	39.7	61.4	56.2	61.5	61.8
48	24.6	49.6	49.9	62.0	56.1	58.2
64	16.4	39.7	46.9	45.0	49.2	51.0

*** Speed of DGEBRD in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		16.9	24.4	20.8	22.4	22.3	23.0
(16, 48)		11.3	20.7	24.9	26.9	27.5	30.0
(32, 128)		16.9	22.4	23.0	24.4	26.4	29.4
(48, 128)		33.9	20.7	19.3	23.1	25.8	27.1

64	.0	4.5	4.5	5.8	4.8	5.6

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 16

NB \ N	50	100	200	300	400	500
1	.0	32.2	32.3	36.4	34.6	36.9
16	.0	32.2	43.1	72.9	57.6	62.4
32	8.0	32.2	43.1	48.6	43.2	45.0
48	.0	.0	25.9	36.4	37.1	40.5
64	.0	16.1	25.9	32.4	32.4	30.0

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 16

NB \ N	50	100	200	300	400	500
1	.0	.0	43.1	36.4	39.9	35.3
16	.0	32.2	43.1	58.3	51.9	57.9
32	.0	32.2	43.1	36.4	47.2	45.0
48	.0	32.2	32.3	36.4	37.1	36.9
64	.0	32.2	21.6	29.2	28.8	29.0

DORMTR with SIDE = 'R', UPLO = 'U', TRANS = 'T', M = 100

NB \ N	50	100	200	300	400	500
1	49.1	28.4	25.7	26.4	26.4	26.6
16	49.1	99.2	99.7	94.7	100.0	104.2
32	.0	99.2	79.8	94.7	94.1	104.2
48	49.1	66.2	79.8	85.6	94.1	86.2
64	24.6	66.2	72.5	78.2	86.5	86.2

DORMTR with SIDE = 'R', UPLO = 'L', TRANS = 'T', M = 100

NB \ N	50	100	200	300	400	500
1	24.6	28.4	27.5	26.4	25.8	26.6
16	49.1	66.2	99.7	94.7	106.7	104.2
32	49.1	66.2	88.7	94.7	94.1	100.0
48	49.1	66.2	79.8	89.9	86.5	92.6
64	24.6	49.6	72.5	81.7	88.9	83.4

*** Speed of DGEBRD in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		33.9	29.9	27.8	28.0	27.5	28.2
(16, 48)		33.9	33.6	43.7	49.1	50.3	52.0
(32, 128)		16.9	26.9	37.6	43.0	47.2	49.0
(48, 128)		16.9	29.9	33.5	39.9	43.1	45.7

(64, 128)	11.3	24.4	18.1	22.1	23.4	25.9

*** Speed of DORGBR in megaflops ***

DORGBR with VECT = 'Q', N = MIN(M,K)

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
(NB, NX)							
(1, 0)		16.9	22.4	19.8	20.9	20.7	20.9
(16, 48)		16.9	33.6	51.0	55.5	58.6	60.9
(32, 128)		8.5	19.2	46.5	52.3	59.4	66.2
(48, 128)		16.9	22.4	39.7	47.5	58.6	62.3
(64, 128)		16.9	22.4	35.7	43.5	50.6	55.6

DORGBR with VECT = 'P', M = MIN(K,N)

	K	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		.0	18.6	22.4	24.0	24.2	25.4
(16, 48)		15.9	43.5	39.1	47.0	49.3	55.1
(32, 128)		15.9	21.7	37.7	42.5	48.2	55.7
(48, 128)		.0	18.6	33.0	39.3	47.7	51.4
(64, 128)		15.9	26.1	30.1	36.5	43.3	48.4

*** Speed of DORMBR in megaflops ***

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	9.0	16.1	12.5
16	.0	2.0	4.0	6.0	5.4	5.6
32	.0	2.0	2.7	3.0	2.7	2.6
48	.5	2.0	1.6	1.5	1.7	1.8
64	.0	1.0	1.2	1.1	1.2	1.2

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.1	16.1	18.1	21.4	20.1
16	1.0	4.1	8.1	18.1	10.7	10.0
32	.0	4.1	4.0	4.0	4.6	4.8
48	.0	2.0	3.2	3.6	2.9	3.5
64	.0	2.0	2.7	2.3	2.3	2.4

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 16

(64, 128)	33.9	26.9	31.0	36.8	39.2	42.8

*** Speed of DORGBR in megaflops ***

DORGBR with VECT = 'Q', N = MIN(M,K)

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
(NB, NX)							
(1, 0)		16.9	33.6	31.5	30.8	30.2	31.1
(16, 48)		16.9	44.8	76.5	82.0	87.2	85.2
(32, 128)		.0	33.6	66.9	90.2	100.6	107.0
(48, 128)		.0	26.9	66.9	82.0	93.9	98.2
(64, 128)		16.9	22.4	56.3	73.7	79.2	89.7

DORGBR with VECT = 'P', M = MIN(K,N)

	K	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		15.9	18.6	25.7	25.7	25.9	26.4
(16, 48)		.0	65.2	75.3	87.1	98.7	100.6
(32, 128)		15.9	32.6	58.6	76.0	88.4	94.3
(48, 128)		.0	26.1	47.9	63.8	80.8	86.4
(64, 128)		.0	26.1	47.9	57.6	69.0	77.5

*** Speed of DORMBR in megaflops ***

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	18.1	32.1	25.1
16	.0	.0	.0	6.0	8.0	8.4
32	.0	2.0	4.0	4.5	4.0	4.6
48	.0	2.0	2.7	3.0	3.2	3.1
64	.0	2.0	2.0	2.6	2.9	2.3

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	18.1	32.1	33.4
16	1.0	.0	16.1	12.1	16.1	14.3
32	.0	.0	8.1	9.0	9.2	8.4
48	.0	.0	5.4	7.2	5.8	6.7
64	.0	4.1	8.1	4.5	4.3	5.0

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	32.5	25.8	26.3	27.0	28.7
16	.0	32.5	43.0	48.2	39.5	40.1
32	8.2	16.2	25.8	26.3	25.7	27.7
48	8.2	16.2	21.5	20.7	20.6	20.1
64	.0	10.8	14.3	15.2	16.6	16.7

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	12.9	18.5	20.2	20.8	20.0	20.9
16	25.8	50.8	53.7	56.5	58.4	57.6
32	25.8	40.6	62.0	58.4	63.0	65.1
48	25.8	40.6	53.7	53.2	55.4	57.0
64	25.8	33.8	42.4	50.3	49.4	50.7

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.5	.0	8.1	18.1	10.7	16.7
16	.0	.0	8.1	4.5	5.4	4.6
32	.5	2.0	2.7	2.6	2.9	2.5
48	.0	1.0	1.6	1.6	1.7	1.7
64	.0	2.0	1.0	1.1	1.2	1.2

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	16.1	18.1	21.4	25.1
16	.0	4.1	8.1	12.1	9.2	10.0
32	.0	4.1	5.4	4.5	4.9	5.3
48	.0	4.1	3.2	2.8	3.4	3.3
64	.0	2.0	2.3	2.3	2.6	2.4

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	8.2	32.5	21.5	26.3	27.0	27.7
16	.0	32.5	32.2	28.9	39.5	38.2
32	.0	32.5	32.2	28.9	32.1	28.7
48	8.2	32.5	21.5	19.3	19.8	22.9

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	8.2	32.5	64.5	57.9	51.4	50.2
16	.0	.0	64.5	57.9	73.4	61.7
32	.0	32.5	43.0	48.2	51.4	47.2
48	.0	32.5	25.8	32.2	36.7	40.1
64	.0	32.5	25.8	28.9	28.6	30.9

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.8	29.0	29.9	30.2	30.0	29.5
16	51.5	50.8	73.3	78.7	84.5	85.0
32	51.5	101.5	89.6	95.2	103.6	104.5
48	51.5	67.7	89.6	82.2	89.2	98.3
64	25.8	67.7	73.3	82.2	91.8	88.0

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	8.1	18.1	32.1	16.7
16	.0	1.0	4.0	9.0	6.4	8.4
32	.0	2.0	4.0	4.5	4.0	4.6
48	.0	2.0	2.7	3.6	3.2	3.1
64	.5	2.0	2.7	2.6	2.3	2.5

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	16.1	36.2	32.1	50.2
16	.0	4.1	16.1	12.1	12.8	14.3
32	1.0	4.1	16.1	9.0	9.2	7.7
48	.0	2.0	16.1	6.0	5.8	6.3
64	.0	4.1	4.0	4.5	5.4	5.6

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	32.5	64.5	57.9	64.2	53.5
16	.0	32.5	43.0	57.9	57.1	66.9
32	.0	32.5	43.0	48.2	42.8	44.6
48	8.2	32.5	43.0	36.2	36.7	40.1

64	.0	10.8	14.3	15.2	16.6	15.4

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	17.2	18.5	20.7	20.8	21.3	21.1
16	51.5	40.6	50.4	53.2	59.5	59.0
32	51.5	50.8	62.0	62.4	59.5	64.3
48	51.5	33.8	53.7	51.7	56.4	59.7
64	25.8	40.6	44.8	47.6	50.2	51.2

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	3.4	3.2	2.5	2.8
16	.0	.0	5.0	5.6	5.0	5.7
32	.0	2.5	2.5	2.5	3.6	3.0
48	.6	2.5	1.7	2.1	2.1	2.0
64	.0	1.3	1.3	1.5	1.5	1.5

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.5	6.0	5.1	4.5	4.2
16	.0	4.5	6.0	8.1	10.3	8.7
32	1.1	4.5	4.5	5.1	5.6	4.9
48	1.1	4.5	3.0	3.4	3.4	3.9
64	.0	2.3	2.6	2.5	2.4	2.6

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	8.3	16.4	16.3	13.3	12.4	12.2
16	8.3	.0	32.7	36.7	34.8	38.8
32	.0	32.8	26.1	24.5	29.0	28.1
48	8.3	16.4	18.7	19.6	19.3	20.4
64	8.3	16.4	14.5	14.7	14.9	15.4

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						

64	.0	32.5	32.2	32.2	28.6	32.1

DORMBR with VECT = 'Q', SIDE = 'L', TRANS = 'T', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.5	33.8	33.6	30.7	30.9	30.2
16	51.5	67.7	80.6	78.7	84.5	85.0
32	51.5	101.5	89.6	100.5	97.3	104.5
48	51.5	67.7	80.6	86.1	97.3	98.3
64	25.8	67.7	89.6	86.1	84.5	86.5

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	.0	22.6	13.4	20.9
16	.0	.0	5.0	11.3	10.0	8.9
32	.0	2.5	5.0	5.6	5.7	5.7
48	.0	1.3	3.4	4.5	3.6	4.2
64	.6	2.5	3.4	3.2	3.1	3.1

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	18.1	20.3	24.1	28.2
16	.0	4.5	18.1	20.3	12.0	14.1
32	.0	4.5	6.0	8.1	10.3	8.7
48	1.1	4.5	6.0	6.8	6.6	6.6
64	.0	4.5	6.0	5.1	5.2	5.4

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	43.6	48.9	32.6	37.0
16	.0	32.8	65.3	58.7	57.9	54.3
32	.0	32.8	43.6	41.9	47.4	47.9
48	.0	32.8	32.7	36.7	34.8	37.0
64	.0	16.4	32.7	32.6	27.4	32.6

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						

1	25.6	25.3	26.9	27.4	24.9	26.0
16	51.1	50.6	67.2	67.1	71.5	69.8
32	51.1	67.5	62.0	64.7	64.3	62.0
48	51.1	50.6	57.6	53.3	56.4	58.4
64	25.6	50.6	44.8	47.6	48.7	48.3

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	3.4	2.8	2.9	2.6
16	.6	2.5	5.0	5.6	5.7	5.7
32	.0	2.5	3.4	2.5	2.7	3.1
48	.0	1.3	2.0	2.1	2.0	2.4
64	.6	2.5	1.7	1.4	1.5	1.5

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.5	6.0	4.5	4.2	4.2
16	.0	4.5	9.0	8.1	9.0	10.2
32	.0	4.5	4.5	4.1	5.6	4.7
48	.0	2.3	3.6	3.4	3.6	3.9
64	.0	4.5	2.3	2.4	2.3	2.5

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	16.4	14.5	13.3	13.0	12.3
16	.0	32.8	26.1	41.9	37.2	38.8
32	.0	16.4	26.1	24.5	27.4	27.1
48	.0	16.4	18.7	18.3	20.9	21.4
64	.0	16.4	14.5	15.4	14.9	15.1

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	17.0	28.9	26.0	26.6	23.3	24.1
16	51.1	50.6	62.0	67.1	68.4	70.7
32	25.6	50.6	50.4	60.4	67.0	61.3
48	17.0	40.5	50.4	54.9	54.5	57.7
64	25.6	33.8	42.4	44.2	47.3	50.2

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 1

1	25.6	33.8	26.9	26.6	26.6	26.2
16	51.1	101.3	89.6	106.5	103.7	100.5
32	51.1	101.3	89.6	90.5	100.5	100.5
48	51.1	101.3	73.3	86.2	94.6	91.3
64	25.6	67.5	67.2	78.7	84.6	89.7

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.6	.0	10.1	22.6	40.1	20.9
16	.0	.0	10.1	7.5	10.0	10.4
32	.0	.0	10.1	7.5	5.7	5.7
48	.0	.0	3.4	3.8	4.0	3.9
64	.0	2.5	2.5	3.2	2.7	3.1

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	4.5	.0	20.3	24.1	28.2
16	.6	.0	18.1	13.5	14.4	14.1
32	.0	.0	9.0	10.2	8.0	8.7
48	.0	4.5	9.0	5.8	6.0	6.6
64	.0	4.5	4.5	4.5	4.2	4.7

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	32.7	36.7	43.4	37.0
16	.0	32.8	43.6	48.9	57.9	62.6
32	.0	.0	43.6	41.9	40.1	45.2
48	8.3	32.8	32.7	32.6	37.2	37.0
64	.0	16.4	26.1	29.3	29.0	31.3

DORMBR with VECT = 'Q', SIDE = 'R', TRANS = 'T', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.6	25.3	26.9	27.0	26.8	26.0
16	51.1	101.3	89.6	100.6	107.2	102.5
32	51.1	67.5	89.6	100.6	97.5	98.5
48	51.1	67.5	80.6	90.5	91.9	93.0
64	25.6	67.5	73.3	82.3	82.5	81.0

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	2.0	2.7	2.2	2.0	1.9
16	.0	2.0	2.0	1.3	1.3	1.2
32	.0	2.0	1.1	1.0	1.2	1.1
48	.5	2.0	1.0	.9	.9	.9
64	.0	2.0	.9	.9	.8	.8

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	4.0	4.0	4.5	3.8	3.4
16	.0	4.0	2.7	2.6	2.6	2.4
32	.0	4.0	2.3	2.2	2.1	2.1
48	1.0	2.0	2.3	1.8	1.9	1.8
64	.0	2.0	1.8	1.7	1.6	1.6

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	31.8	16.0	18.0	14.6	14.0
16	.0	15.9	14.2	14.4	15.0	13.5
32	7.9	15.9	14.2	13.7	13.5	13.8
48	7.9	10.6	14.2	12.0	12.2	12.1
64	.0	15.9	11.6	12.0	11.1	11.1

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	16.5	16.6	19.0	19.1	18.1	18.4
16	49.5	39.8	42.0	40.8	42.1	44.2
32	16.5	49.7	46.9	43.8	46.3	47.6
48	24.7	49.7	46.9	43.8	43.8	45.0
64	16.5	33.2	38.0	41.8	41.5	41.3

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.5	.0	2.7	2.0	1.9	1.8
16	.0	2.0	1.3	1.2	1.1	1.2
32	.0	1.0	1.3	1.2	1.0	1.1
48	.0	2.0	.9	1.1	.9	.9

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	8.0	18.0	10.7	10.0
16	.0	.0	8.0	6.0	8.0	5.5
32	.0	2.0	4.0	3.6	3.2	3.3
48	.0	2.0	2.7	2.6	2.5	2.5
64	.0	2.0	1.6	2.0	1.9	1.8

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	16.0	18.0	21.3	20.0
16	.0	.0	5.3	9.0	10.7	11.1
32	1.0	4.0	8.0	6.0	7.1	6.2
48	.0	.0	5.3	5.1	4.6	4.3
64	.0	2.0	4.0	3.3	3.2	3.3

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	31.8	42.6	41.1	36.5	27.6
16	.0	.0	42.6	41.1	39.3	40.0
32	.0	31.8	31.9	35.9	34.1	32.0
48	.0	31.8	25.5	28.8	25.6	28.5
64	7.9	15.9	18.2	24.0	23.2	20.5

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	24.7	24.9	29.6	25.7	29.6	27.9
16	.0	66.3	72.5	81.7	81.9	79.3
32	49.5	99.5	88.7	94.6	94.0	89.2
48	49.5	66.3	79.8	74.9	88.8	84.7
64	24.7	66.3	72.5	74.9	71.0	74.6

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	.0	8.0	18.0	10.7	10.0
16	.0	2.0	8.0	6.0	6.4	6.2
32	.0	.0	2.7	3.6	3.6	3.1
48	.0	2.0	2.0	2.2	2.5	2.4

64	.0	1.0	.9	.9	.8	.8

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	4.0	5.3	3.6	3.4	3.2
16	1.0	4.0	3.2	2.6	2.5	2.6
32	.0	4.0	2.7	2.2	1.9	2.2
48	.0	2.0	1.6	2.1	1.9	1.8
64	.0	4.0	1.6	1.6	1.7	1.6

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	7.9	15.9	16.0	13.7	13.8	14.0
16	7.9	15.9	18.2	13.7	14.2	14.3
32	.0	10.6	14.2	14.4	13.5	14.0
48	.0	31.8	11.6	12.5	11.9	12.1
64	.0	15.9	11.6	11.1	11.1	10.9

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	12.4	15.3	17.3	18.7	18.1	18.7
16	24.7	49.7	44.3	40.8	41.0	42.3
32	49.5	39.8	46.9	46.1	45.7	47.6
48	16.5	39.8	42.0	43.8	45.7	45.4
64	9.9	39.8	38.0	40.8	40.5	42.3

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.6	2.5	1.4	1.4	1.3	1.3
16	.0	2.5	1.4	1.4	1.5	1.4
32	.6	2.5	1.4	1.5	1.3	1.3
48	.0	.8	1.2	1.3	1.2	1.1
64	.0	2.5	1.1	1.0	1.0	1.0

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
64	.0	2.0	2.0	1.8	1.7	1.8

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	4.0	.0	18.0	21.3	16.6
16	.0	.0	16.0	12.0	10.7	11.1
32	.0	4.0	5.3	7.2	6.4	6.2
48	1.0	4.0	4.0	4.5	4.6	4.5
64	.0	4.0	4.0	3.3	3.8	3.3

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	7.9	.0	42.6	35.9	39.3	27.6
16	7.9	31.8	42.6	47.9	46.5	42.1
32	.0	31.8	25.5	31.9	34.1	33.3
48	.0	15.9	25.5	24.0	26.9	26.6
64	.0	31.8	21.3	20.5	23.2	20.5

DORMBR with VECT = 'P', SIDE = 'L', TRANS = 'T', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	49.5	24.9	29.6	30.5	28.8	28.1
16	.0	49.7	72.5	81.7	79.9	79.3
32	49.5	49.7	79.8	89.8	94.0	90.8
48	49.5	66.3	72.5	85.6	81.9	83.2
64	49.5	99.5	72.5	74.9	66.6	73.5

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	.0	10.0	7.5	3.6	2.7
16	.6	.0	5.0	7.5	6.7	6.9
32	.0	.0	5.0	4.5	5.0	3.9
48	.6	.0	2.5	2.8	3.1	3.1
64	.6	2.5	2.0	2.2	2.7	2.3

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						

1	.0	2.2	1.8	2.2	2.1	2.1
16	1.1	4.5	3.0	2.7	2.8	2.5
32	.0	4.5	3.0	2.4	2.3	2.4
48	.0	4.5	2.2	2.2	2.1	2.0
64	.0	2.2	2.2	2.0	1.8	1.9

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	8.0	10.7	9.2	8.8	9.1	8.4
16	.0	16.1	18.5	16.2	16.2	15.0
32	8.0	16.1	14.4	14.6	14.4	14.2
48	.0	16.1	14.4	13.9	12.7	13.1
64	.0	16.1	11.8	11.7	11.5	12.1

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	49.1	24.8	24.9	21.9	22.2	22.7
16	49.1	49.6	49.9	47.3	48.5	47.6
32	24.6	39.7	49.9	47.3	47.1	48.6
48	24.6	39.7	46.9	42.8	43.2	46.3
64	24.6	33.1	39.9	40.9	40.5	42.8

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	1.2	1.2	1.4	1.3	1.2
16	.0	2.5	1.4	1.6	1.5	1.4
32	.0	1.2	1.7	1.3	1.2	1.3
48	.6	2.5	1.2	1.2	1.2	1.2
64	.0	1.2	1.1	1.0	1.0	1.0

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	4.5	2.6	2.0	2.1	2.0
16	.0	4.5	3.0	2.5	2.6	2.6
32	.0	2.2	2.6	2.4	2.2	2.3
48	1.1	2.2	2.2	2.4	2.1	2.0
64	1.1	2.2	1.8	1.9	1.8	1.7

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 16

1	.0	4.5	17.9	10.1	7.2	4.7
16	.0	4.5	9.0	13.5	9.0	11.2
32	1.1	4.5	9.0	6.7	6.0	6.6
48	.0	2.2	4.5	5.8	4.8	4.9
64	.0	4.5	4.5	3.1	4.5	3.7

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	32.2	25.9	26.5	22.6	17.3
16	.0	32.2	64.7	48.6	51.9	47.7
32	.0	16.1	43.1	41.6	34.6	35.3
48	8.0	32.2	32.3	32.4	30.5	29.0
64	.0	32.2	21.6	22.4	23.6	23.2

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	24.6	24.8	25.7	26.1	25.0	23.9
16	.0	66.2	88.7	89.9	100.0	96.2
32	49.1	49.6	88.7	94.7	91.4	89.3
48	49.1	66.2	79.8	81.7	80.0	83.4
64	16.4	66.2	72.5	71.9	74.4	72.5

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.6	.0	10.0	7.5	4.0	2.7
16	.0	.0	10.0	7.5	8.0	6.2
32	.0	2.5	5.0	4.5	3.6	3.9
48	.0	2.5	3.3	3.2	2.9	2.8
64	.0	2.5	2.0	2.5	2.2	2.3

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	.0	17.9	10.1	7.2	4.3
16	.0	.0	17.9	8.1	12.0	10.2
32	.0	.0	6.0	8.1	7.2	6.6
48	.0	4.5	4.5	5.0	5.1	4.9
64	.0	4.5	4.5	3.7	3.8	3.6

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	10.7	10.0	9.4	8.6	8.4
16	.0	16.1	18.5	15.3	15.7	14.2
32	.0	16.1	14.4	14.6	13.7	15.0
48	8.0	16.1	12.9	13.3	12.4	13.3
64	8.0	16.1	12.9	12.1	11.5	12.1

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	24.6	22.1	24.9	23.7	22.4	22.4
16	49.1	49.6	46.9	47.3	49.2	46.8
32	49.1	66.2	46.9	47.3	46.4	47.6
48	49.1	49.6	44.3	45.0	45.7	46.3
64	49.1	33.1	38.0	41.8	41.6	42.0

End of tests
Total time used = 3275.02 seconds

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	32.2	32.3	26.5	21.6	16.2
16	8.0	.0	43.1	48.6	47.2	45.0
32	.0	32.2	32.3	36.4	37.1	35.3
48	.0	32.2	25.9	29.2	28.8	28.0
64	.0	32.2	21.6	24.3	23.6	23.2

DORMBR with VECT = 'P', SIDE = 'R', TRANS = 'T', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	24.6	28.4	25.7	24.0	24.8	23.6
16	49.1	99.2	99.7	94.7	94.1	94.4
32	49.1	99.2	88.7	89.9	91.4	92.6
48	24.6	66.2	72.5	81.7	80.0	86.2
64	16.4	49.6	61.4	78.2	76.2	73.6

End of tests
Total time used = 2199.44 seconds

LAPACK VERSION 1.1, released March 31, 1993

LAPACK timing, DOUBLE PRECISION band matrices

The following parameter values will be used:

M:	1000				
N:	25	50	100	150	200
K:	1	2	16	100	
NB:	1	16	32	48	64
NX:	0	48	128	128	128
LDA:	602				

The minimum time a subroutine will be timed = .000 seconds

>>>>> Sample BLAS <<<<<

*** Speed of DGBMV in meaflops ***
with LDA = 602

M \ K	25	50	100	150	200
1000	23.3	22.6	24.3	25.6	25.8

*** Speed of DGEMM in megflops ***
with LDA = 602

K	25	50	100	150	200
	.0	.0	100.0	96.4	100.0

>>>>> Timing data <<<<<

*** Speed of DGBTRF in megaflops ***
with LDA = 602

DGBTRF with M = 1000

NB \ K	25	50	100	150	200
1	34.1	32.4	21.2	22.0	22.1
16	23.5	38.3	47.0	52.9	57.9
32	33.2	34.4	46.7	54.7	58.4
48	28.9	30.6	41.0	50.4	55.6
64	24.8	26.3	40.1	44.6	50.1

*** Speed of DGBTRS in megaflops ***
with LDA = 602

LAPACK VERSION 2.0, released September 30, 1994

LAPACK timing, DOUBLE PRECISION band matrices

The following parameter values will be used:

M:	1000				
N:	25	50	100	150	200
K:	1	2	16	100	
NB:	1	16	32	48	64
NX:	0	48	128	128	128
LDA:	602				

The minimum time a subroutine will be timed = .000 seconds

>>>>> Sample BLAS <<<<<

*** Speed of DGBMV in meaflops ***
with LDA = 602

M \ K	25	50	100	150	200
1000	28.5	33.2	35.5	37.8	37.3

*** Speed of DGEMM in megaflops **
with LDA = 602

K	25	50	100	150	200
	.0	.0	200.0	168.8	145.5

>>>>> Timing data <<<<<

*** Speed of DGBTRF in megaflops ***
with LDA = 602

DGBTRF with M = 1000

NB \ K	25	50	100	150	200
1	30.5	63.1	24.1	24.2	24.6
16	34.5	76.2	77.6	88.9	101.6
32	46.9	52.1	81.1	92.6	101.5
48	43.8	44.9	77.6	84.5	95.8
64	39.7	68.6	63.1	75.7	78.0

*** Speed of DGBTRS in megaflops ***
with LDA = 602

DGBTRS with M = 1000

NRHS \ K	25	50	100	150	200
1	7.4	9.6	13.8	13.1	14.3
2	7.4	14.4	22.0	22.5	20.0
16	19.7	23.1	25.9	23.8	24.6
100	20.8	20.9	23.0	23.3	24.7

*** Speed of DPBTRF in megaflops ***

DPBTRF with M = 1000, UPLO = 'U'

NB \ K	25	50	100	150	200
1	22.2	35.9	25.7	10.3	5.6
16	16.6	35.9	59.5	57.0	56.5
32	22.2	31.4	63.5	70.7	68.6
48	16.6	41.9	56.0	64.1	76.1
64	33.2	31.4	52.9	64.1	71.4

DPBTRF with M = 1000, UPLO = 'L'

NB \ K	25	50	100	150	200
1	22.2	27.9	21.6	21.6	22.7
16	22.2	31.4	56.0	60.3	68.6
32	16.6	35.9	59.5	68.4	72.9
48	16.6	27.9	59.5	62.2	67.3
64	22.2	35.9	50.1	68.4	72.9

*** Speed of DPBTRS in megaflops ***

DPBTRS with M = 1000, UPLO = 'U'

NRHS \ K	25	50	100	150	200
1	.0	.0	38.2	27.8	24.1
2	10.1	19.7	19.1	27.8	28.9
16	16.1	24.2	26.6	26.2	26.2
100	19.7	22.6	25.5	25.3	26.2

DPBTRS with M = 1000, UPLO = 'L'

NRHS \ K	25	50	100	150	200
1	.0	19.7	38.2	27.8	36.1
2	20.1	19.7	19.1	27.8	28.9
16	17.9	26.3	25.5	24.1	26.2
100	18.3	21.2	24.2	25.1	26.4

*** Speed of DTBTRS in megaflops ***
with LDA = 602

DGBTRS with M = 1000

NRHS \ K	25	50	100	150	200
1	14.8	14.4	13.8	19.7	20.0
2	14.8	19.2	27.5	26.3	28.6
16	26.3	35.5	36.7	37.1	36.4
100	32.1	32.8	29.0	27.7	28.8

*** Speed of DPBTRF in megaflops ***

DPBTRF with M = 1000, UPLO = 'U'

NB \ K	25	50	100	150	200
1	66.5	41.9	52.9	29.3	26.7
16	33.2	83.8	95.2	102.6	106.1
32	33.2	83.8	86.5	97.7	109.4
48	.0	62.8	95.2	102.6	109.4
64	66.5	83.8	86.5	93.3	116.7

DPBTRF with M = 1000, UPLO = 'L'

NB \ K	25	50	100	150	200
1	33.2	83.8	50.1	28.1	26.1
16	22.2	50.3	86.5	102.6	112.9
32	33.2	83.8	86.5	97.7	106.1
48	66.5	50.3	73.2	97.7	112.9
64	66.5	50.3	86.5	102.6	116.7

*** Speed of DPBTRS in megaflops ***

DPBTRS with M = 1000, UPLO = 'U'

NRHS \ K	25	50	100	150	200
1	.0	19.7	38.2	27.8	36.1
2	20.1	39.4	25.5	37.1	36.1
16	26.9	28.6	32.2	33.0	35.0
100	25.8	29.4	32.1	33.1	33.4

DPBTRS with M = 1000, UPLO = 'L'

NRHS \ K	25	50	100	150	200
1	.0	19.7	19.1	55.7	72.2
2	20.1	39.4	38.2	27.8	36.1
16	23.0	31.5	32.2	33.0	34.0
100	26.5	32.8	32.4	34.4	34.0

*** Speed of DTBTRS in megaflops ***
with LDA = 602

DTBTRS with M = 1000, UPLO = 'U'

NRHS \ K	25	50	100	150	200
1	.0	9.8	19.1	27.8	.0
2	.0	19.7	38.2	18.6	24.1
16	16.1	19.7	21.8	23.4	23.1
100	14.8	17.9	21.4	21.7	22.0

DTBTRS with M = 1000, UPLO = 'L'

NRHS \ K	25	50	100	150	200
1	5.0	9.8	19.1	.0	12.0
2	10.1	19.7	19.1	13.9	18.0
16	16.1	19.7	19.1	23.4	24.1
100	15.3	18.2	21.9	23.8	23.9

End of tests
Total time used = 93.79 seconds

DTBTRS with M = 1000, UPLO = 'U'

NRHS \ K	25	50	100	150	200
1	.0	9.8	19.1	27.8	36.1
2	10.1	19.7	38.2	27.8	36.1
16	20.1	22.5	30.5	29.7	28.9
100	19.4	24.6	26.5	28.4	28.9

DTBTRS with M = 1000, UPLO = 'L'

NRHS \ K	25	50	100	150	200
1	.0	.0	19.1	27.8	36.1
2	10.1	19.7	38.2	27.8	36.1
16	20.1	31.5	33.9	37.1	36.1
100	22.9	29.0	31.8	34.4	36.4

End of tests
Total time used = 64.26 seconds

LAPACK VERSION 1.1, released March 31, 1993

LAPACK timing, DOUBLE PRECISION rectangular matrices

The following parameter values will be used:

M:	100	200	100	200	400	200	400
N:	100	100	200	200	200	400	400
K:	1	2	16	100			
NB:	1	16	32	48	64		
NX:	0	48	128	128	128		
LDA:	401						

The minimum time a subroutine will be timed = .000 seconds

>>>>> Timing data <<<<<

*** Speed of DGEQRF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		19.3	30.6	28.2	29.9	33.1	31.2	32.6
(16, 48)		45.1	56.1	48.3	59.7	67.0	57.2	70.2
(32, 128)		33.8	28.0	28.2	48.9	46.2	48.0	67.4
(48, 128)		33.8	28.0	22.6	51.2	52.5	46.3	63.9
(64, 128)		33.8	30.6	28.2	46.7	43.2	48.9	61.6

*** Speed of DORGQR in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		33.6	33.3	33.6	28.2	34.2	33.5	32.5
(16, 48)		44.8	55.6	44.8	56.3	70.2	66.9	64.3
(32, 128)		33.6	30.3	33.6	59.5	49.4	59.5	66.8
(48, 128)		33.6	33.3	44.8	56.3	46.0	53.5	68.9
(64, 128)		33.6	30.3	33.6	46.5	49.4	44.6	62.0

*** Speed of DORMQR in megaflops ***

DORMQR with SIDE = 'L', TRANS = 'N', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	6.0	8.1	12.0	16.1
16		.0	6.0	4.0	4.8	5.4
32		2.0	3.0	2.7	3.4	3.2
48		2.0	2.0	2.7	2.4	2.5

LAPACK VERSION 2.0, released September 30, 1994

LAPACK timing, DOUBLE PRECISION rectangular matrices

The following parameter values will be used:

M:	100	200	100	200	400	200	400
N:	100	100	200	200	200	400	400
K:	1	2	16	100			
NB:	1	16	32	48	64		
NX:	0	48	128	128	128		
LDA:	401						

The minimum time a subroutine will be timed = .000 seconds

>>>>> Timing data <<<<<

*** Speed of DGEQRF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		33.8	37.4	33.8	32.6	33.1	32.8	35.0
(16, 48)		45.1	84.1	84.6	107.5	107.2	92.6	109.8
(32, 128)		45.1	37.4	37.6	97.7	65.3	72.6	104.5
(48, 128)		67.7	37.4	33.8	82.7	62.3	68.9	97.3
(64, 128)		45.1	37.4	33.8	71.7	62.3	79.0	89.2

*** Speed of DORGQR in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		67.2	41.7	44.8	34.5	33.3	35.7	34.8
(16, 48)		67.2	111.1	67.2	107.1	102.6	107.1	106.9
(32, 128)		67.2	41.7	44.8	82.4	74.1	89.2	106.9
(48, 128)		67.2	33.3	67.2	82.4	65.0	89.2	97.2
(64, 128)		67.2	41.7	67.2	71.4	59.3	76.5	90.0

*** Speed of DORMQR in megaflops ***

DORMQR with SIDE = 'L', TRANS = 'N', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	8.1	24.1	16.1
16		.0	6.0	8.1	12.0	8.0
32		.0	6.0	4.0	6.0	5.4
48		2.0	6.0	2.7	4.0	3.6

64	2.0	1.5	2.0	2.2	2.0

DORMQR with SIDE = 'L', TRANS = 'N', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	12.1	16.1	48.1	16.1
16		4.1	12.1	5.4	9.6	9.2
32		.0	12.1	5.4	6.0	5.8
48		4.1	6.0	5.4	4.8	4.0
64		4.1	3.0	3.2	4.0	4.0

DORMQR with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		16.2	48.2	43.0	25.7	32.1
16		32.5	48.2	43.0	42.8	39.5
32		16.2	24.1	43.0	35.0	36.7
48		32.5	24.1	32.2	25.7	25.7
64		16.2	19.3	18.4	25.7	23.4

DORMQR with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		33.8	31.7	33.6	31.7	33.5
16		67.7	67.0	57.6	75.2	66.9
32		33.8	75.4	73.3	70.8	71.4
48		50.8	75.4	57.6	61.7	59.5
64		50.8	67.0	57.6	63.3	60.6

DORMQR with SIDE = 'L', TRANS = 'T', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	.0	12.0	16.1
16		.0	6.0	8.1	6.0	5.4
32		2.0	3.0	4.0	3.4	2.9
48		.0	3.0	1.6	2.4	2.5
64		2.0	2.0	2.0	2.4	2.0

DORMQR with SIDE = 'L', TRANS = 'T', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						

64	2.0	3.0	2.7	2.7	2.9

DORMQR with SIDE = 'L', TRANS = 'N', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	16.1	24.1	32.1
16		.0	12.1	8.1	16.0	16.1
32		.0	.0	8.1	9.6	10.7
48		.0	12.1	5.4	6.9	7.1
64		4.1	6.0	8.1	5.3	4.9

DORMQR with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.5	96.5	43.0	77.0	64.2
16		.0	96.5	43.0	64.2	64.2
32		32.5	48.2	43.0	48.1	57.1
48		32.5	48.2	32.2	38.5	42.8
64		16.2	32.2	32.2	32.1	34.3

DORMQR with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		67.7	33.5	38.4	35.4	34.9
16		67.7	100.5	89.6	109.4	107.1
32		67.7	86.1	89.6	109.4	103.6
48		67.7	86.1	100.8	96.2	94.5
64		50.8	86.1	89.6	89.1	91.8

DORMQR with SIDE = 'L', TRANS = 'T', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	6.0	.0	24.1	32.1
16		.0	.0	8.1	8.0	8.0
32		2.0	3.0	.0	6.0	5.4
48		2.0	6.0	8.1	3.4	3.6
64		.0	3.0	2.7	2.4	2.9

DORMQR with SIDE = 'L', TRANS = 'T', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						

1	.0	.0	16.1	48.1	21.4
16	.0	12.1	16.1	12.0	12.8
32	4.1	6.0	5.4	8.0	8.0
48	4.1	3.0	5.4	4.8	5.4
64	4.1	4.0	3.2	4.0	3.8

DORMQR with SIDE = 'L', TRANS = 'T', N = 16

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	32.5	48.2	32.2	32.1	34.3
16	32.5	48.2	43.0	48.1	51.4
32	32.5	48.2	43.0	38.5	36.7
48	32.5	24.1	25.8	25.7	28.6
64	16.2	19.3	21.5	25.7	23.4

DORMQR with SIDE = 'L', TRANS = 'T', N = 100

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	29.0	30.2	29.9	32.1	32.1
16	67.7	86.1	62.0	70.8	68.3
32	50.8	60.3	53.7	75.2	71.4
48	40.6	50.3	62.0	65.0	66.9
64	50.8	67.0	47.4	60.2	59.5

DORMQR with SIDE = 'R', TRANS = 'N', M = 1

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	7.5	10.1	3.8	4.0
16	2.5	7.5	10.1	6.0	6.7
32	.0	3.8	5.0	4.3	4.5
48	2.5	2.5	5.0	2.7	3.6
64	1.3	2.5	2.5	2.7	2.5

DORMQR with SIDE = 'R', TRANS = 'N', M = 2

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	4.5	13.5	9.0	5.4	6.0
16	.0	13.5	9.0	10.8	10.3
32	4.5	13.5	9.0	7.7	8.0
48	4.5	4.5	6.0	5.4	6.6
64	4.5	4.5	3.6	4.2	4.8

DORMQR with SIDE = 'R', TRANS = 'N', M = 16

1	.0	.0	.0	48.1	32.1
16	4.1	12.1	16.1	16.0	16.1
32	4.1	6.0	8.1	9.6	10.7
48	4.1	12.1	8.1	6.9	6.4
64	4.1	6.0	5.4	5.3	4.9

DORMQR with SIDE = 'L', TRANS = 'T', N = 16

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	32.5	48.2	64.5	64.2	73.4
16	.0	48.2	64.5	77.0	64.2
32	32.5	96.5	64.5	55.0	51.4
48	.0	48.2	43.0	48.1	42.8
64	.0	48.2	32.2	32.1	32.1

DORMQR with SIDE = 'L', TRANS = 'T', N = 100

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	50.8	33.5	36.6	33.4	36.9
16	101.5	120.6	115.1	104.6	107.1
32	101.5	100.5	100.8	109.4	103.6
48	67.7	75.4	80.6	100.3	91.8
64	67.7	86.1	89.6	89.1	91.8

DORMQR with SIDE = 'R', TRANS = 'N', M = 1

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	7.5	.0	15.0	13.4
16	2.5	7.5	10.1	10.0	13.4
32	2.5	7.5	5.0	10.0	8.0
48	.0	7.5	5.0	4.3	5.7
64	2.5	3.8	5.0	3.0	3.3

DORMQR with SIDE = 'R', TRANS = 'N', M = 2

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	.0	9.0	27.0	24.1
16	.0	.0	18.1	18.0	14.4
32	.0	13.5	9.0	13.5	12.0
48	4.5	13.5	9.0	6.8	8.0
64	.0	6.8	6.0	6.0	6.0

DORMQR with SIDE = 'R', TRANS = 'N', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.8	32.6	32.7	16.3	19.3
16		32.8	48.9	43.6	43.4	40.1
32		32.8	32.6	32.7	35.5	32.6
48		32.8	19.6	26.1	27.9	32.6
64		32.8	24.5	18.7	30.1	23.7

DORMQR with SIDE = 'R', TRANS = 'N', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		40.5	30.2	36.6	28.0	29.2
16		50.6	67.1	57.6	70.9	67.0
32		67.5	67.1	62.0	65.1	60.7
48		67.5	67.1	62.0	75.3	67.0
64		67.5	54.9	53.7	61.8	58.5

DORMQR with SIDE = 'R', TRANS = 'T', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	3.8	10.1	3.8	4.5
16		.0	7.5	5.0	6.0	5.7
32		2.5	3.8	3.4	4.3	4.0
48		2.5	3.8	3.4	3.3	3.3
64		2.5	2.5	2.0	2.7	2.5

DORMQR with SIDE = 'R', TRANS = 'T', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	13.5	9.0	6.8	7.2
16		4.5	13.5	9.0	13.5	12.0
32		.0	6.8	6.0	7.7	6.6
48		4.5	6.8	6.0	7.7	6.6
64		4.5	4.5	3.6	3.9	4.0

DORMQR with SIDE = 'R', TRANS = 'T', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		16.4	24.5	32.7	17.0	18.6
16		.0	48.9	32.7	48.8	43.4
32		32.8	48.9	43.6	35.5	32.6
48		32.8	97.8	26.1	32.6	30.7

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	48.9	43.6	39.1	43.4
16		.0	48.9	43.6	65.1	65.2
32		.0	32.6	43.6	55.8	57.9
48		32.8	97.8	43.6	43.4	43.4
64		32.8	48.9	32.7	32.6	29.0

DORMQR with SIDE = 'R', TRANS = 'N', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		67.5	33.5	33.6	31.3	32.5
16		101.3	120.7	115.1	104.8	100.5
32		67.5	100.6	89.6	104.8	103.7
48		101.3	86.2	80.6	92.7	91.9
64		101.3	86.2	89.6	86.1	86.9

DORMQR with SIDE = 'R', TRANS = 'T', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	7.5	.0	15.0	20.1
16		.0	7.5	10.1	10.0	10.0
32		2.5	7.5	10.1	7.5	8.0
48		.0	3.8	5.0	5.0	4.5
64		2.5	7.5	3.4	3.3	4.0

DORMQR with SIDE = 'R', TRANS = 'T', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		4.5	13.5	.0	27.0	36.1
16		4.5	.0	18.1	18.0	18.0
32		4.5	13.5	18.1	13.5	9.0
48		.0	6.8	18.1	7.7	8.0
64		4.5	6.8	9.0	6.8	5.6

DORMQR with SIDE = 'R', TRANS = 'T', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.8	48.9	65.3	35.5	40.1
16		16.4	97.8	65.3	65.1	65.2
32		32.8	97.8	65.3	55.8	65.2
48		32.8	48.9	43.6	43.4	43.4

64	10.9	24.5	21.8	24.4	24.8

DORMQR with SIDE = 'R', TRANS = 'T', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		40.5	27.4	29.9	29.4	28.7
16		50.6	67.1	62.0	66.9	67.0
32		67.5	67.1	57.6	73.0	68.4
48		50.6	67.1	57.6	61.8	64.3
64		50.6	60.4	47.4	57.4	63.1

*** Speed of DGELQF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	33.8	30.7	26.0	29.0	30.1	24.0	30.2
(16,	48)	67.7	67.5	33.7	43.0	57.1	34.4	54.6
(32,	128)	45.1	37.5	26.0	43.0	50.6	31.9	53.5
(48,	128)	33.8	28.1	24.1	43.0	49.7	31.2	51.6
(64,	128)	27.1	28.1	26.0	39.8	52.6	29.5	48.4

*** Speed of DORGLQ in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	33.6	26.9	23.9	24.3	25.5	25.4	30.4
(16,	48)	44.8	44.8	37.1	48.7	59.5	39.9	55.2
(32,	128)	26.9	26.9	23.9	46.6	46.6	34.7	57.4
(48,	128)	44.8	26.9	25.7	39.7	46.6	34.7	53.4
(64,	128)	26.9	26.9	23.9	38.2	41.2	33.0	49.4

*** Speed of DORMLQ in megaflops ***

DORMLQ with SIDE = 'L', TRANS = 'N', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	6.0	8.1	2.4	2.7
16		.0	6.0	4.0	1.7	2.1
32		2.0	3.0	2.0	1.5	1.9
48		2.0	1.5	2.0	1.4	1.5
64		2.0	1.5	1.6	1.1	1.2

DORMLQ with SIDE = 'L', TRANS = 'N', N = 2

64	32.8	48.9	43.6	32.6	34.8

DORMQR with SIDE = 'R', TRANS = 'T', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		50.6	33.5	38.4	31.3	33.2
16		101.3	100.6	73.3	104.8	103.7
32		67.5	100.6	80.6	104.8	97.5
48		101.3	100.6	89.6	100.4	91.9
64		67.5	86.2	80.6	89.3	80.4

*** Speed of DGELQF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	45.1	42.2	30.7	31.6	32.3	31.6	32.7
(16,	48)	67.7	67.5	67.5	89.6	95.8	86.5	100.8
(32,	128)	67.7	37.5	37.5	82.7	72.5	59.6	92.1
(48,	128)	45.1	37.5	37.5	76.8	68.8	52.6	84.0
(64,	128)	67.7	37.5	33.7	63.2	78.9	51.6	79.3

*** Speed of DORGLQ in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	44.8	44.8	37.1	32.4	31.5	30.0	31.4
(16,	48)	67.2	67.2	66.9	89.2	89.2	83.5	97.2
(32,	128)	44.8	44.8	30.4	82.4	82.4	56.8	96.1
(48,	128)	67.2	67.2	33.4	76.5	76.5	55.6	83.0
(64,	128)	44.8	67.2	37.1	71.4	66.9	51.4	79.9

*** Speed of DORMLQ in megaflops ***

DORMLQ with SIDE = 'L', TRANS = 'N', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		2.0	6.0	8.1	12.0	16.1
16		.0	.0	8.1	6.0	8.0
32		.0	6.0	4.0	4.0	4.6
48		.0	6.0	4.0	2.2	2.7
64		2.0	3.0	2.7	2.0	2.3

DORMLQ with SIDE = 'L', TRANS = 'N', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	12.1	8.1	4.4	4.9
16		.0	6.0	8.1	3.7	4.3
32		4.1	6.0	5.4	2.8	3.6
48		4.1	4.0	4.0	2.5	2.8
64		4.1	2.4	2.3	2.4	2.3

DORMLQ with SIDE = 'L', TRANS = 'N', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		32.5	19.3	21.5	14.8	16.1
16		32.5	32.2	21.5	21.4	22.3
32		32.5	24.1	25.8	18.3	20.6
48		32.5	19.3	18.4	17.5	19.0
64		16.2	19.3	16.1	14.8	14.7

DORMLQ with SIDE = 'L', TRANS = 'N', N = 100

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		25.4	26.2	27.8	27.7	27.2
16		50.8	60.3	57.6	53.5	57.4
32		67.7	54.8	67.2	57.3	57.4
48		50.8	60.3	53.7	51.2	54.4
64		50.8	60.3	44.8	53.5	48.7

DORMLQ with SIDE = 'L', TRANS = 'T', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		2.0	6.0	8.1	2.4	2.7
16		2.0	6.0	8.1	2.0	2.1
32		.0	2.0	2.7	1.3	1.8
48		2.0	2.0	1.6	1.3	1.5
64		1.0	2.0	2.0	1.0	1.2

DORMLQ with SIDE = 'L', TRANS = 'T', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		4.1	6.0	8.1	4.4	4.9
16		4.1	6.0	5.4	3.4	4.6
32		4.1	4.0	4.0	3.4	3.4
48		2.0	3.0	3.2	2.7	2.9

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	12.1	8.1	16.0	21.4
16		4.1	12.1	16.1	12.0	16.1
32		.0	6.0	8.1	8.0	9.2
48		4.1	12.1	8.1	6.0	5.4
64		.0	6.0	5.4	4.4	4.3

DORMLQ with SIDE = 'L', TRANS = 'N', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		32.5	48.2	43.0	32.1	34.3
16		.0	96.5	64.5	55.0	73.4
32		32.5	48.2	43.0	55.0	46.7
48		32.5	48.2	43.0	35.0	36.7
64		32.5	32.2	43.0	29.6	28.6

DORMLQ with SIDE = 'L', TRANS = 'N', N = 100

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		67.7	30.2	33.6	31.7	31.8
16		101.5	100.5	100.8	109.4	103.6
32		203.0	100.5	80.6	96.2	97.3
48		101.5	100.5	89.6	85.9	89.2
64		67.7	86.1	80.6	80.2	80.3

DORMLQ with SIDE = 'L', TRANS = 'T', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	.0	.0	12.0	10.7
16		.0	6.0	8.1	12.0	8.0
32		2.0	6.0	8.1	4.8	4.6
48		1.0	3.0	2.7	3.4	3.2
64		2.0	3.0	2.7	2.0	2.1

DORMLQ with SIDE = 'L', TRANS = 'T', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	.0	.0	24.1	21.4
16		4.1	12.1	16.1	16.0	12.8
32		4.1	12.1	16.1	8.0	8.0
48		.0	6.0	8.1	5.3	5.4

64	4.1	3.0	2.3	2.4	2.2

DORMLQ with SIDE = 'L', TRANS = 'T', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	32.5	24.1	21.5	15.4	16.6
16	32.5	32.2	32.2	20.3	25.7
32	32.5	32.2	25.8	21.4	20.6
48	16.2	32.2	32.2	17.5	17.7
64	16.2	24.1	21.5	14.8	15.1

DORMLQ with SIDE = 'L', TRANS = 'T', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	25.4	27.4	26.9	29.7	28.2
16	50.8	60.3	67.2	54.7	55.4
32	40.6	60.3	57.6	54.7	58.4
48	50.8	60.3	47.4	54.7	55.4
64	50.8	54.8	53.7	54.7	51.0

DORMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	2.5	1.7	1.3	1.5
16	.0	2.5	5.0	2.3	2.5
32	2.5	2.5	3.4	1.8	2.1
48	2.5	2.5	2.5	1.6	1.7
64	2.5	1.9	1.7	1.5	1.6

DORMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	4.5	3.4	4.5	2.6	2.8
16	.0	6.8	6.0	4.2	4.2
32	.0	6.8	6.0	3.0	3.8
48	4.5	4.5	4.5	2.7	3.0
64	2.3	3.4	3.6	2.4	2.8

DORMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					

64	4.1	4.0	4.0	4.0	4.3

DORMLQ with SIDE = 'L', TRANS = 'T', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	32.5	48.2	43.0	35.0	34.3
16	32.5	48.2	64.5	64.2	64.2
32	.0	48.2	43.0	48.1	46.7
48	32.5	32.2	32.2	32.1	34.3
64	16.2	32.2	32.2	25.7	27.0

DORMLQ with SIDE = 'L', TRANS = 'T', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	40.6	30.2	35.0	31.7	32.1
16	101.5	100.5	100.8	104.6	103.6
32	67.7	100.5	100.8	100.3	94.5
48	67.7	86.1	89.6	92.5	84.5
64	67.7	100.5	80.6	80.2	78.3

DORMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	.0	10.1	4.3	5.7
16	.0	7.5	10.1	7.5	8.0
32	.0	7.5	10.1	5.0	5.0
48	.0	3.8	5.0	3.3	3.6
64	.0	3.8	3.4	2.7	2.9

DORMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	.0	18.1	10.8	8.0
16	.0	.0	9.0	18.0	14.4
32	.0	13.5	18.1	7.7	9.0
48	.0	6.8	6.0	6.8	6.0
64	4.5	6.8	9.0	5.4	4.8

DORMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					

1	32.8	10.9	14.5	10.9	11.8
16	32.8	32.6	32.7	20.6	23.7
32	32.8	24.5	26.1	18.6	22.7
48	16.4	19.6	21.8	17.8	16.8
64	16.4	24.5	18.7	15.0	15.3

DORMLQ with SIDE = 'R', TRANS = 'N', M = 100

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		25.3	26.2	26.9	25.6	25.3
16		50.6	54.9	57.6	53.6	54.5
32		40.5	67.1	57.6	57.4	57.4
48		50.6	60.4	53.7	51.3	54.5
64		40.5	60.4	53.7	50.2	49.5

DORMLQ with SIDE = 'R', TRANS = 'T', M = 1

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		2.5	1.9	2.5	1.5	1.6
16		2.5	7.5	3.4	2.5	2.5
32		2.5	2.5	3.4	2.0	2.0
48		2.5	2.5	1.7	1.6	1.8
64		2.5	1.9	2.0	1.4	1.4

DORMLQ with SIDE = 'R', TRANS = 'T', M = 2

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		4.5	3.4	3.6	2.8	2.7
16		4.5	6.8	6.0	3.9	4.5
32		4.5	6.8	4.5	3.6	3.8
48		4.5	3.4	4.5	3.0	3.4
64		4.5	3.4	3.6	2.6	2.6

DORMLQ with SIDE = 'R', TRANS = 'T', M = 16

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		32.8	12.2	13.1	10.9	11.3
16		32.8	32.6	32.7	21.7	23.7
32		.0	24.5	26.1	21.7	21.7
48		16.4	24.5	26.1	17.8	19.3
64		32.8	19.6	16.3	15.0	15.3

DORMLQ with SIDE = 'R', TRANS = 'T', M = 100

1	32.8	48.9	43.6	20.6	23.7
16	.0	48.9	65.3	65.1	52.1
32	.0	48.9	65.3	48.8	52.1
48	32.8	48.9	43.6	30.1	34.8
64	.0	32.6	26.1	26.0	29.0

DORMLQ with SIDE = 'R', TRANS = 'N', M = 100

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		40.5	31.8	32.2	28.7	29.5
16		101.3	100.6	100.8	104.8	100.5
32		67.5	100.6	100.8	96.4	91.9
48		67.5	100.6	80.6	89.3	89.3
64		101.3	75.4	80.6	77.7	82.5

DORMLQ with SIDE = 'R', TRANS = 'T', M = 1

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		.0	7.5	10.1	6.0	6.7
16		2.5	7.5	10.1	6.0	10.0
32		2.5	7.5	10.1	4.3	5.7
48		2.5	7.5	5.0	3.8	3.6
64		2.5	3.8	3.4	2.5	2.7

DORMLQ with SIDE = 'R', TRANS = 'T', M = 2

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		.0	13.5	18.1	9.0	10.3
16		4.5	13.5	18.1	18.0	18.0
32		4.5	13.5	9.0	9.0	9.0
48		4.5	13.5	9.0	6.0	6.0
64		4.5	6.8	6.0	5.4	4.8

DORMLQ with SIDE = 'R', TRANS = 'T', M = 16

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		.0	32.6	43.6	23.0	23.7
16		32.8	97.8	43.6	78.1	65.2
32		.0	48.9	65.3	48.8	43.4
48		32.8	32.6	43.6	32.6	34.8
64		32.8	48.9	32.7	24.4	29.0

DORMLQ with SIDE = 'R', TRANS = 'T', M = 100

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	28.9	24.1	29.9	25.6	26.4
16	50.6	54.9	57.6	60.3	53.6
32	50.6	60.4	57.6	56.0	57.4
48	50.6	54.9	53.7	52.4	55.4
64	40.5	54.9	47.4	52.4	51.0

*** Speed of DGEQLF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	22.6	33.6	28.2	28.3	31.5	29.5	31.8
(16,	48)	67.7	48.1	56.4	76.8	65.3	57.2	68.0
(32,	128)	33.8	33.6	26.0	56.6	52.5	49.8	68.5
(48,	128)	33.8	30.6	28.2	46.7	49.6	48.9	63.4
(64,	128)	45.1	33.6	26.0	46.7	50.5	50.7	63.4

*** Speed of DORGQL in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	33.6	30.3	33.6	32.4	32.9	32.4	33.5
(16,	48)	67.2	55.6	33.6	56.3	66.7	66.9	67.3
(32,	128)	33.6	33.3	26.9	56.3	56.7	56.3	70.1
(48,	128)	44.8	30.3	26.9	53.5	46.8	48.7	65.8
(64,	128)	44.8	30.3	33.6	56.3	53.3	44.6	59.4

*** Speed of DORMQL in megaflops ***

DORMQL with SIDE = 'L', TRANS = 'N', N = 1

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	6.0	8.1	24.1	16.1
16	.0	6.0	4.0	4.8	3.6
32	.0	6.0	4.0	3.4	3.6
48	2.0	3.0	2.0	2.7	3.2
64	2.0	2.0	1.6	2.2	2.0

DORMQL with SIDE = 'L', TRANS = 'N', N = 2

M	100	200	200	400	400
K	100	100	200	200	400
NB					

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	50.6	28.7	33.6	28.7	29.5
16	67.5	100.6	100.8	100.4	97.5
32	67.5	86.2	89.6	92.7	97.5
48	67.5	86.2	89.6	89.3	86.9
64	67.5	100.6	89.6	77.7	80.4

*** Speed of DGEQLF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	67.7	37.4	33.8	34.7	34.8	32.8	35.0
(16,	48)	67.7	84.1	84.6	97.7	103.0	103.3	112.7
(32,	128)	67.7	37.4	33.8	82.7	67.0	70.7	107.1
(48,	128)	67.7	37.4	37.6	76.8	63.8	67.2	97.3
(64,	128)	67.7	37.4	30.8	67.2	59.5	81.4	94.1

*** Speed of DORGQL in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	67.2	41.7	44.8	34.5	34.6	33.5	34.3
(16,	48)	67.2	83.3	67.2	97.3	98.8	107.1	112.5
(32,	128)	44.8	41.7	44.8	89.2	66.7	97.3	101.8
(48,	128)	134.3	41.7	67.2	82.4	65.0	89.2	100.6
(64,	128)	44.8	37.0	67.2	82.4	63.5	76.5	92.9

*** Speed of DORMQL in megaflops ***

DORMQL with SIDE = 'L', TRANS = 'N', N = 1

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	6.0	.0	24.1	32.1
16	2.0	6.0	8.1	8.0	6.4
32	2.0	6.0	4.0	6.0	5.4
48	.0	6.0	4.0	4.0	3.6
64	.0	6.0	2.7	3.0	2.9

DORMQL with SIDE = 'L', TRANS = 'N', N = 2

M	100	200	200	400	400
K	100	100	200	200	400
NB					

1	.0	12.1	16.1	16.0	21.4
16	.0	12.1	8.1	12.0	16.1
32	4.1	6.0	5.4	6.9	7.1
48	4.1	4.0	5.4	4.4	5.8
64	4.1	6.0	4.0	4.0	4.0

DORMQL with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.5	48.2	43.0	35.0	32.1
16		32.5	48.2	43.0	38.5	42.8
32		32.5	32.2	32.2	35.0	34.3
48		32.5	32.2	32.2	27.5	25.7
64		32.5	32.2	18.4	24.1	24.5

DORMQL with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		25.4	31.7	33.6	33.0	32.1
16		50.8	75.4	57.6	70.8	69.8
32		50.8	60.3	62.0	68.7	68.3
48		67.7	60.3	62.0	70.8	60.6
64		50.8	60.3	50.4	61.7	61.8

DORMQL with SIDE = 'L', TRANS = 'T', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		2.0	.0	8.1	12.0	10.7
16		2.0	6.0	8.1	6.0	5.4
32		2.0	3.0	4.0	4.0	2.9
48		2.0	6.0	2.7	3.0	2.7
64		2.0	2.0	2.0	2.0	2.0

DORMQL with SIDE = 'L', TRANS = 'T', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	12.1	16.1	24.1	21.4
16		4.1	12.1	8.1	12.0	10.7
32		.0	12.1	8.1	6.9	7.1
48		4.1	6.0	4.0	5.3	5.8
64		4.1	4.0	3.2	3.7	4.3

DORMQL with SIDE = 'L', TRANS = 'T', N = 16

1	.0	.0	.0	24.1	21.4
16	4.1	12.1	16.1	24.1	16.1
32	.0	12.1	8.1	12.0	9.2
48	4.1	6.0	5.4	8.0	7.1
64	4.1	12.1	5.4	5.3	5.4

DORMQL with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.5	96.5	129.0	64.2	64.2
16		32.5	96.5	64.5	77.0	57.1
32		32.5	48.2	43.0	55.0	57.1
48		32.5	48.2	43.0	38.5	39.5
64		32.5	48.2	25.8	29.6	32.1

DORMQL with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		50.8	33.5	38.4	33.0	33.8
16		67.7	100.5	100.8	109.4	110.8
32		101.5	120.6	100.8	114.6	110.8
48		67.7	120.6	89.6	92.5	94.5
64		67.7	100.5	89.6	89.1	84.5

DORMQL with SIDE = 'L', TRANS = 'T', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	8.1	24.1	16.1
16		.0	.0	8.1	8.0	6.4
32		.0	6.0	8.1	4.0	5.4
48		2.0	6.0	8.1	3.4	3.6
64		2.0	3.0	2.7	2.4	2.5

DORMQL with SIDE = 'L', TRANS = 'T', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	16.1	48.1	32.1
16		.0	12.1	8.1	16.0	12.8
32		4.1	12.1	16.1	9.6	9.2
48		.0	12.1	8.1	8.0	8.0
64		4.1	12.1	5.4	5.3	5.4

DORMQL with SIDE = 'L', TRANS = 'T', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.5	48.2	43.0	35.0	36.7
16		32.5	32.2	43.0	48.1	51.4
32		32.5	48.2	43.0	35.0	36.7
48		16.2	32.2	32.2	27.5	30.2
64		16.2	24.1	25.8	24.1	27.0

DORMQL with SIDE = 'L', TRANS = 'T', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		29.0	30.2	28.8	31.7	30.0
16		50.8	67.0	67.2	72.9	71.4
32		50.8	60.3	67.2	75.2	65.6
48		50.8	60.3	57.6	66.8	61.8
64		50.8	75.4	62.0	60.2	61.8

DORMQL with SIDE = 'R', TRANS = 'N', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		2.5	3.8	5.0	3.3	4.0
16		2.5	7.5	5.0	6.0	5.7
32		2.5	7.5	5.0	3.8	4.0
48		2.5	3.8	5.0	3.8	3.3
64		.0	3.8	2.0	2.5	2.5

DORMQL with SIDE = 'R', TRANS = 'N', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	6.8	9.0	5.4	6.6
16		4.5	6.8	6.0	9.0	10.3
32		.0	13.5	6.0	6.8	9.0
48		4.5	4.5	6.0	6.8	6.6
64		4.5	4.5	4.5	4.2	4.5

DORMQL with SIDE = 'R', TRANS = 'N', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.8	32.6	26.1	15.6	18.0
16		32.8	48.9	32.7	43.4	40.1
32		32.8	32.6	43.6	39.1	40.1
48		32.8	19.6	32.7	30.1	30.7

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	48.2	64.5	77.0	57.1
16		.0	48.2	64.5	64.2	102.8
32		.0	48.2	43.0	55.0	46.7
48		32.5	48.2	43.0	38.5	36.7
64		32.5	32.2	43.0	32.1	36.7

DORMQL with SIDE = 'L', TRANS = 'T', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		67.7	35.5	33.6	34.9	35.3
16		67.7	100.5	100.8	109.4	119.0
32		67.7	100.5	100.8	100.3	97.3
48		50.8	86.1	89.6	96.2	97.3
64		101.5	100.5	80.6	92.5	86.8

DORMQL with SIDE = 'R', TRANS = 'N', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	7.5	10.1	30.1	20.1
16		2.5	.0	10.1	7.5	13.4
32		2.5	7.5	10.1	10.0	8.0
48		2.5	7.5	3.4	5.0	5.0
64		2.5	3.8	3.4	3.3	3.6

DORMQL with SIDE = 'R', TRANS = 'N', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	6.8	.0	54.1	26.1
16		.0	.0	18.1	27.0	14.4
32		4.5	13.5	9.0	13.5	12.0
48		.0	13.5	9.0	9.0	8.0
64		.0	6.8	6.0	4.9	6.6

DORMQL with SIDE = 'R', TRANS = 'N', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.8	48.9	43.6	35.5	43.4
16		.0	48.9	65.3	55.8	65.2
32		32.8	32.6	43.6	65.1	47.4
48		32.8	48.9	43.6	39.1	43.4

64	32.8	32.6	26.1	24.4	24.8

DORMQL with SIDE = 'R', TRANS = 'N', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		28.9	30.2	27.8	28.4	30.1
16		67.5	67.1	62.0	68.9	65.6
32		50.6	67.1	57.6	70.9	68.4
48		50.6	75.4	57.6	66.9	63.1
64		50.6	50.3	57.6	56.0	64.3

DORMQL with SIDE = 'R', TRANS = 'T', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	7.5	10.1	3.3	3.3
16		.0	7.5	10.1	6.0	5.7
32		2.5	3.8	3.4	6.0	4.5
48		2.5	3.8	3.4	3.0	3.3
64		.0	2.5	2.0	2.5	2.7

DORMQL with SIDE = 'R', TRANS = 'T', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		4.5	13.5	9.0	5.4	7.2
16		4.5	13.5	18.1	13.5	10.3
32		4.5	13.5	6.0	9.0	10.3
48		4.5	6.8	4.5	6.0	5.6
64		4.5	3.4	4.5	4.5	4.5

DORMQL with SIDE = 'R', TRANS = 'T', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		32.8	24.5	26.1	16.3	17.4
16		32.8	48.9	43.6	43.4	43.4
32		32.8	48.9	32.7	35.5	37.2
48		32.8	32.6	32.7	30.1	32.6
64		16.4	24.5	21.8	23.0	24.8

DORMQL with SIDE = 'R', TRANS = 'T', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						

64	32.8	48.9	43.6	35.5	37.2

DORMQL with SIDE = 'R', TRANS = 'N', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		50.6	31.8	35.0	30.1	32.2
16		67.5	86.2	80.6	96.4	100.5
32		101.3	86.2	115.1	100.4	100.5
48		101.3	100.6	89.6	96.4	91.9
64		67.5	86.2	67.2	89.3	89.3

DORMQL with SIDE = 'R', TRANS = 'T', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	10.1	15.0	20.1
16		.0	7.5	10.1	10.0	13.4
32		.0	7.5	10.1	7.5	6.7
48		.0	2.5	5.0	3.8	5.7
64		2.5	7.5	3.4	3.3	3.3

DORMQL with SIDE = 'R', TRANS = 'T', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	18.1	27.0	18.0
16		4.5	13.5	9.0	18.0	18.0
32		.0	13.5	18.1	9.0	10.3
48		4.5	6.8	9.0	9.0	8.0
64		4.5	6.8	6.0	6.0	6.6

DORMQL with SIDE = 'R', TRANS = 'T', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	48.9	65.3	35.5	43.4
16		32.8	97.8	65.3	78.1	57.9
32		32.8	48.9	65.3	55.8	57.9
48		32.8	48.9	43.6	39.1	43.4
64		32.8	48.9	43.6	32.6	34.8

DORMQL with SIDE = 'R', TRANS = 'T', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						

1	33.8	31.8	29.9	29.0	30.3
16	67.5	60.4	67.2	61.8	64.3
32	50.6	67.1	57.6	70.9	68.4
48	50.6	60.4	62.0	68.9	67.0
64	50.6	67.1	50.4	61.8	52.7

*** Speed of DGERQF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	33.8	30.7	22.5	25.6	30.1	25.6	29.4
(16,	48)	45.1	56.2	30.7	48.9	61.0	35.3	52.5
(32,	128)	33.8	30.7	24.1	35.8	51.6	33.1	55.6
(48,	128)	27.1	30.7	22.5	43.0	47.1	29.5	50.1
(64,	128)	27.1	30.7	24.1	43.0	51.6	28.5	48.9

*** Speed of DORGRQ in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	26.9	22.4	23.9	28.9	25.5	24.3	29.2
(16,	48)	44.8	44.8	37.1	56.4	56.4	37.6	53.8
(32,	128)	26.9	44.8	22.3	42.8	41.2	35.6	58.2
(48,	128)	26.9	33.6	23.9	42.8	44.6	31.8	53.1
(64,	128)	22.4	33.6	23.9	38.2	38.2	31.4	50.9

*** Speed of DORMRQ in megaflops ***

DORMRQ with SIDE = 'L', TRANS = 'N', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	3.0	8.1	2.7	2.9
16	.0	6.0	4.0	1.7	2.0
32	2.0	1.5	2.7	1.3	1.6
48	2.0	1.5	1.6	1.2	1.6
64	.0	1.5	1.6	1.0	1.4

DORMRQ with SIDE = 'L', TRANS = 'N', N = 2

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	12.1	8.1	4.8	4.6
16	.0	6.0	8.1	3.4	4.0
32	4.1	6.0	5.4	3.2	3.4
48	2.0	4.0	4.0	2.5	3.1

1	50.6	31.8	35.0	30.9	31.2
16	101.3	86.2	89.6	100.4	103.7
32	101.3	86.2	100.8	96.4	97.5
48	67.5	100.6	100.8	100.4	91.9
64	67.5	86.2	80.6	83.1	86.9

*** Speed of DGERQF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	67.7	37.5	30.7	32.6	33.5	30.8	32.9
(16,	48)	67.7	84.3	67.5	89.6	107.3	86.5	100.8
(32,	128)	45.1	42.2	37.5	76.8	74.5	57.1	95.2
(48,	128)	45.1	37.5	42.2	76.8	68.8	51.6	88.3
(64,	128)	67.7	37.5	30.7	67.2	78.9	50.6	76.5

*** Speed of DORGRQ in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	67.2	44.8	30.4	31.5	32.4	30.7	31.7
(16,	48)	134.3	67.2	66.9	89.2	82.4	89.0	103.0
(32,	128)	67.2	67.2	37.1	89.2	89.2	60.7	96.1
(48,	128)	67.2	44.8	37.1	82.4	76.5	53.4	89.1
(64,	128)	44.8	44.8	37.1	63.0	71.4	52.4	80.7

*** Speed of DORMRQ in megaflops ***

DORMRQ with SIDE = 'L', TRANS = 'N', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	2.0	6.0	8.1	12.0	8.0
16	.0	.0	8.1	8.0	6.4
32	.0	6.0	4.0	4.8	5.4
48	.0	6.0	2.7	2.7	3.2
64	2.0	6.0	4.0	2.2	2.3

DORMRQ with SIDE = 'L', TRANS = 'N', N = 2

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	.0	.0	16.0	32.1
16	.0	12.1	16.1	24.1	12.8
32	4.1	12.1	8.1	9.6	9.2
48	.0	12.1	8.1	5.3	5.8

64	4.1	3.0	3.2	2.2	2.5

DORMRQ with SIDE = 'L', TRANS = 'N', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	32.5	24.1	25.8	16.7	17.1
16	32.5	32.2	32.2	21.4	25.7
32	32.5	24.1	25.8	18.3	19.8
48	32.5	19.3	25.8	14.3	19.8
64	16.2	19.3	25.8	16.0	16.1

DORMRQ with SIDE = 'L', TRANS = 'N', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	20.3	30.2	28.8	28.0	27.5
16	50.8	60.3	62.0	53.5	57.4
32	40.6	54.8	73.3	54.7	54.4
48	33.8	54.8	57.6	47.2	54.4
64	40.6	67.0	44.8	51.2	47.9

DORMRQ with SIDE = 'L', TRANS = 'T', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	6.0	4.0	3.0	2.9
16	2.0	3.0	2.7	2.2	2.5
32	.0	3.0	2.7	1.5	1.7
48	.0	2.0	1.6	1.4	1.5
64	2.0	2.0	1.6	1.2	1.3

DORMRQ with SIDE = 'L', TRANS = 'T', N = 2

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	6.0	8.1	4.4	4.9
16	4.1	12.1	8.1	3.7	4.3
32	4.1	4.0	5.4	3.4	3.8
48	4.1	3.0	5.4	2.5	3.1
64	4.1	3.0	2.3	2.3	2.5

DORMRQ with SIDE = 'L', TRANS = 'T', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					

64	.0	6.0	3.2	4.4	4.6

DORMRQ with SIDE = 'L', TRANS = 'N', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	32.5	96.5	64.5	32.1	34.3
16	32.5	96.5	43.0	64.2	64.2
32	32.5	48.2	43.0	48.1	51.4
48	32.5	48.2	32.2	35.0	34.3
64	32.5	48.2	32.2	29.6	30.2

DORMRQ with SIDE = 'L', TRANS = 'N', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	67.7	33.5	33.6	32.1	33.8
16	67.7	100.5	89.6	100.3	100.4
32	101.5	86.1	89.6	100.3	107.1
48	67.7	86.1	100.8	89.1	82.4
64	101.5	100.5	80.6	80.2	86.8

DORMRQ with SIDE = 'L', TRANS = 'T', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	6.0	.0	12.0	10.7
16	2.0	6.0	8.1	8.0	8.0
32	.0	6.0	8.1	4.0	5.4
48	2.0	3.0	4.0	2.7	2.9
64	2.0	6.0	2.7	2.2	2.3

DORMRQ with SIDE = 'L', TRANS = 'T', N = 2

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	12.1	8.1	24.1	21.4
16	.0	12.1	16.1	16.0	12.8
32	.0	12.1	16.1	8.0	10.7
48	4.1	12.1	8.1	5.3	6.4
64	4.1	6.0	5.4	4.8	5.4

DORMRQ with SIDE = 'L', TRANS = 'T', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					

1	32.5	13.8	21.5	17.5	16.1
16	32.5	32.2	32.2	24.1	24.5
32	32.5	24.1	25.8	18.3	20.6
48	16.2	24.1	21.5	15.4	18.4
64	32.5	19.3	18.4	16.0	16.6

DORMRQ with SIDE = 'L', TRANS = 'T', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	29.0	25.1	26.0	26.2	28.7
16	50.8	60.3	62.0	56.0	57.4
32	101.5	60.3	53.7	51.2	58.4
48	40.6	60.3	67.2	50.1	54.4
64	50.8	50.3	44.8	51.2	41.2

DORMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	2.5	1.9	1.7	1.4	1.6
16	2.5	3.8	5.0	2.3	2.4
32	.8	3.8	3.4	2.5	2.1
48	2.5	3.8	3.4	1.6	1.7
64	2.5	2.5	1.7	1.4	1.5

DORMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	2.7	3.6	2.5	2.9
16	4.5	6.8	6.0	4.2	4.0
32	4.5	6.8	6.0	3.4	3.8
48	4.5	3.4	3.6	3.0	3.3
64	4.5	3.4	3.0	2.6	2.7

DORMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	16.4	12.2	11.9	12.2	12.1
16	32.8	24.5	32.7	23.0	21.7
32	32.8	24.5	32.7	21.7	20.9
48	32.8	19.6	21.8	17.8	17.4
64	32.8	32.6	18.7	15.6	16.3

DORMRQ with SIDE = 'R', TRANS = 'N', M = 100

1	32.5	96.5	43.0	29.6	34.3
16	32.5	48.2	64.5	64.2	73.4
32	32.5	48.2	129.0	48.1	46.7
48	32.5	24.1	64.5	38.5	36.7
64	32.5	96.5	25.8	32.1	27.0

DORMRQ with SIDE = 'L', TRANS = 'T', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	50.8	30.2	32.2	32.1	31.5
16	67.7	120.6	115.1	104.6	97.3
32	67.7	100.5	80.6	96.2	97.3
48	67.7	60.3	89.6	89.1	94.5
64	67.7	100.5	89.6	80.2	82.4

DORMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	7.5	10.1	5.0	5.7
16	2.5	7.5	10.1	6.0	10.0
32	.0	7.5	10.1	6.0	5.0
48	2.5	3.8	5.0	3.8	3.6
64	.0	3.8	3.4	3.0	2.9

DORMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	4.5	.0	18.1	7.7	9.0
16	.0	13.5	18.1	13.5	14.4
32	4.5	13.5	18.1	10.8	10.3
48	4.5	6.8	6.0	6.0	6.6
64	4.5	6.8	6.0	5.4	5.2

DORMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	32.8	48.9	43.6	21.7	22.7
16	32.8	48.9	65.3	65.1	52.1
32	32.8	48.9	43.6	43.4	43.4
48	32.8	48.9	43.6	39.1	40.1
64	32.8	48.9	32.7	27.9	30.7

DORMRQ with SIDE = 'R', TRANS = 'N', M = 100

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	22.5	26.2	27.8	26.5	24.9
16	50.6	54.9	57.6	53.6	53.6
32	101.3	67.1	62.0	56.0	52.7
48	25.3	50.3	50.4	50.2	57.4
64	50.6	54.9	53.7	46.3	53.6

DORMRQ with SIDE = 'R', TRANS = 'T', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	1.5	2.0	1.4	1.6
16	.0	3.8	3.4	2.3	2.5
32	.0	2.5	3.4	1.7	2.0
48	2.5	1.9	2.5	1.6	1.8
64	2.5	1.9	1.3	1.4	1.4

DORMRQ with SIDE = 'R', TRANS = 'T', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	4.5	3.4	3.6	2.4	2.9
16	4.5	6.8	6.0	3.9	4.5
32	4.5	6.8	9.0	3.4	3.6
48	.0	4.5	4.5	3.0	3.3
64	4.5	4.5	3.6	3.0	2.8

DORMRQ with SIDE = 'R', TRANS = 'T', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	16.4	10.9	13.1	12.2	11.6
16	32.8	32.6	32.7	19.5	21.7
32	10.9	24.5	26.1	20.6	21.7
48	32.8	24.5	26.1	17.0	20.1
64	32.8	19.6	18.7	15.6	16.3

DORMRQ with SIDE = 'R', TRANS = 'T', M = 100

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	28.9	26.2	23.0	26.2	24.7
16	67.5	60.4	62.0	53.6	55.4
32	67.5	60.4	57.6	56.0	52.7
48	40.5	60.4	57.6	50.2	56.4

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	50.6	30.2	28.8	28.4	29.5
16	67.5	100.6	80.6	96.4	107.2
32	67.5	86.2	100.8	92.7	97.5
48	101.3	86.2	89.6	89.3	84.6
64	67.5	100.6	89.6	83.1	80.4

DORMRQ with SIDE = 'R', TRANS = 'T', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	7.5	10.1	6.0	5.7
16	.0	7.5	10.1	10.0	8.0
32	.0	7.5	5.0	5.0	8.0
48	.0	7.5	5.0	3.3	3.6
64	2.5	.0	3.4	2.7	3.1

DORMRQ with SIDE = 'R', TRANS = 'T', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	13.5	18.1	9.0	10.3
16	.0	.0	18.1	18.0	12.0
32	.0	13.5	18.1	10.8	10.3
48	4.5	13.5	6.0	6.0	6.0
64	.0	6.8	9.0	4.9	5.6

DORMRQ with SIDE = 'R', TRANS = 'T', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	32.6	65.3	20.6	22.7
16	.0	48.9	65.3	65.1	65.2
32	32.8	48.9	65.3	48.8	52.1
48	32.8	48.9	32.7	32.6	37.2
64	32.8	32.6	32.7	27.9	32.6

DORMRQ with SIDE = 'R', TRANS = 'T', M = 100

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	67.5	30.2	28.8	29.8	31.5
16	101.3	86.2	89.6	104.8	91.9
32	67.5	100.6	73.3	96.4	103.7
48	101.3	67.1	89.6	92.7	86.9

64	50.6	60.4	50.4	47.3	51.9		

*** Speed of DGEQPF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
Type								
2		23.2	26.3	23.5	28.0	31.8	25.9	28.9
3		23.2	26.3	20.7	26.0	29.7	23.4	29.5

*** Speed of DGEBRD in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		33.6	31.8	25.7	30.6	32.7	27.7	30.0
(16, 48)		29.9	37.1	30.4	36.3	41.4	30.9	39.4
(32, 128)		29.9	30.4	24.7	33.5	39.2	29.8	37.3
(48, 128)		29.9	33.4	23.8	31.0	33.8	27.5	35.0
(64, 128)		29.9	30.4	25.7	28.2	32.0	25.2	32.8

*** Speed of DORGBR in megaflops ***

DORGBR with VECT = 'Q', N = MIN(M,K)

	M	100	200	100	200	400	200	400
	K	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		33.6	33.3	32.6	31.5	35.6	33.0	32.9
(16, 48)		44.8	66.7	65.2	63.0	68.4	58.6	69.5
(32, 128)		26.9	33.3	32.6	53.5	56.7	62.0	65.8
(48, 128)		33.6	33.3	32.6	48.7	51.3	55.5	70.1
(64, 128)		33.6	33.3	32.6	48.7	49.4	45.9	65.8

DORGBR with VECT = 'P', M = MIN(K,N)

	K	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		32.6	32.6	23.9	27.8	27.8	25.0	29.5
(16, 48)		65.2	43.5	41.8	50.2	52.7	39.9	57.3
(32, 128)		32.6	26.1	23.9	40.6	45.9	36.1	55.5
(48, 128)		26.1	26.1	23.9	40.6	43.9	33.0	53.4
(64, 128)		26.1	26.1	23.9	40.6	39.1	32.2	51.4

End of tests
Total time used = 833.40 seconds

64	67.5	75.4	80.6	80.3	82.5

*** Speed of DGEQPF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
Type								
2		46.4	34.2	32.0	30.3	33.8	30.1	32.9
3		34.8	34.2	29.4	30.3	32.2	31.2	32.3

*** Speed of DGEBRD in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		53.8	37.1	39.3	33.5	32.7	31.8	33.7
(16, 48)		44.8	47.7	39.3	48.7	52.3	50.4	56.4
(32, 128)		53.8	39.3	33.4	43.7	45.2	41.4	51.8
(48, 128)		53.8	39.3	35.1	40.4	41.7	39.0	47.6
(64, 128)		44.8	39.3	35.1	34.0	39.5	36.6	44.2

*** Speed of DORGBR in megaflops ***

DORGBR with VECT = 'Q', N = MIN(M,K)

	M	100	200	100	200	400	200	400
	K	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		44.8	37.0	43.4	34.5	34.6	35.2	34.6
(16, 48)		44.8	111.1	65.2	97.3	106.7	87.9	118.7
(32, 128)		67.2	47.6	130.3	89.2	68.4	95.9	105.5
(48, 128)		67.2	37.0	43.4	82.4	63.5	87.9	95.0
(64, 128)		67.2	41.7	43.4	76.5	62.0	70.3	90.0

DORGBR with VECT = 'P', M = MIN(K,N)

	K	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		43.5	43.5	30.4	33.0	31.0	30.7	31.7
(16, 48)		130.4	130.4	83.6	75.3	87.9	83.5	102.2
(32, 128)		65.2	65.2	37.1	75.3	81.1	58.1	103.5
(48, 128)		43.5	65.2	37.1	75.3	70.3	52.4	88.4
(64, 128)		43.5	65.2	33.4	65.9	65.9	50.4	77.8

End of tests
Total time used = 635.70 seconds

LAPACK VERSION 1.1, released March 31, 1993

LAPACK timing, COMPLEX*16 square matrices

M:	50	100	200	300	400	500
N:	50	100	200	300	400	500
K:	1	2	16	100		
NB:	1	16	32	48	64	
NX:	0	48	128	128	128	
LDA:	513					

The minimum time a subroutine will be timed = .000 seconds

>>>>> Sample BLAS <<<<<

*** Speed of ZGEMV in megaflops ***
with LDA = 513

N	50	100	200	300	400	500
	33.8	38.4	40.4	39.0	38.9	40.1

*** Speed of ZGEMM in megaflops ***
with LDA = 513

N	50	100	200	300	400	500
	33.3	40.0	39.0	39.3	40.3	40.1

>>>>> Timing data <<<<<

*** Speed of ZGETRF in megaflops ***

N	50	100	200	300	400	500
NB						
1	16.5	33.2	38.0	39.3	41.0	41.9
16	33.1	33.2	32.8	36.9	36.9	37.3
32	16.5	33.2	32.3	36.1	36.9	38.2
48	33.1	33.2	34.3	36.9	37.6	37.4
64	33.1	26.6	34.9	36.1	36.7	38.1

*** Speed of ZGETRS in megaflops ***

N	50	100		300	400	500
NRHS						
1	.0	8.0	32.0	36.0	32.0	40.0
2	.0	.0	63.9	36.0	42.6	40.0
16	31.8	31.9	39.3	39.7	35.9	36.8

LAPACK VERSION 2.0, released September 30, 1994

LAPACK timing, COMPLEX*16 square matrices

M:	50	100	200	300	400	500
N:	50	100	200	300	400	500
K:	1	2	16	100		
NB:	1	16	32	48	64	
NX:	0	48	128	128	128	
LDA:	513					

The minimum time a subroutine will be timed = .020 seconds

>>>>> Sample BLAS <<<<<

*** Speed of ZGEMV in megaflops ***
with LDA = 513

N	50	100	200	300	400	500
	50.7	57.6	57.9	57.7	57.5	57.8

*** Speed of ZGEMM in megaflops ***
with LDA = 513

N	50	100	200	300	400	500
	66.7	61.5	61.5	61.4	61.0	61.1

>>>>> Timing data <<<<<

*** Speed of ZGETRF in megaflops ***

N	50	100	200	300	400	500
NB						
1	33.1	53.1	57.5	59.9	59.2	59.8
16	49.6	44.3	53.2	56.2	56.5	57.5
32	44.1	53.1	54.6	56.2	56.8	57.5
48	49.6	44.3	53.2	55.7	57.0	57.9
64	49.6	53.1	53.2	55.7	57.0	57.8

*** Speed of ZGETRS in megaflops ***

N	50	100	200	300	400	500
NRHS						
1	34.5	31.9	32.0	54.0	63.9	66.6
2	31.8	42.6	95.9	48.0	51.2	50.0
16	47.8	63.8	56.8	57.6	53.9	54.2

100	24.9	33.3	34.4	36.7	36.9	37.4

*** Speed of ZGETRI in megaflops ***

NB \ N	50	100	200	300	400	500
1	33.4	38.1	38.1	38.0	39.7	40.0
16	33.4	33.3	38.8	40.1	39.1	39.7
32	66.7	38.1	37.1	39.3	40.1	39.9
48	33.4	35.6	38.8	39.3	39.6	39.5
64	33.4	35.6	38.8	40.6	38.6	40.1

*** Speed of ZGTTRF in megaflops ***

N	50	100	200	300	400	500
	.0	.0	.0	.0	.0	.0

*** Speed of ZGTTRS in megaflops ***

ZGTTRS with TRANS = 'N'

NRHS \ N	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	2.4	4.8	9.6	7.2	19.2	24.0
100	14.7	14.9	14.9	12.8	13.3	13.6

ZGTTRS with TRANS = 'T'

NRHS \ N	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	14.4	9.6	24.0
100	14.7	14.9	14.9	17.9	13.3	13.6

ZGTTRS with TRANS = 'C'

NRHS \ N	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	3.0
16	.0	.0	9.6	14.4	9.6	12.0
100	14.7	9.9	14.9	17.9	13.3	13.6

*** Speed of ZGTSV in megaflops ***

NRHS \ N	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	2.3

100	39.8	49.9	51.5	53.7	53.7	54.5

*** Speed of ZGETRI in megaflops ***

NB \ N	50	100	200	300	400	500
1	44.5	59.3	57.7	57.8	58.1	58.5
16	44.5	53.3	57.7	59.0	59.4	59.6
32	33.3	53.3	58.4	58.5	59.2	59.4
48	44.5	53.3	59.3	59.0	59.2	59.4
64	44.5	53.3	57.7	58.8	59.1	59.4

*** Speed of ZGTTRF in megaflops ***

N	50	100	200	300	400	500
	1.6	8.3	5.7	5.2	3.4	4.2

*** Speed of ZGTTRS in megaflops ***

ZGTTRS with TRANS = 'N'

NRHS \ N	50	100	200	300	400	500
1	7.2	21.7	9.3	21.5	8.4	17.2
2	10.5	14.3	10.7	15.2	12.0	12.0
16	11.8	14.3	15.9	19.1	28.7	18.0
100	19.6	19.8	19.9	22.4	23.9	29.9

ZGTTRS with TRANS = 'T'

NRHS \ N	50	100	200	300	400	500
1	14.0	9.8	21.5	17.9	8.4	9.0
2	11.5	10.9	16.1	11.7	12.8	10.5
16	15.3	17.4	19.1	19.1	28.7	24.0
100	24.5	59.3	19.9	29.9	29.9	29.9

ZGTTRS with TRANS = 'C'

NRHS \ N	50	100	200	300	400	500
1	17.9	34.1	23.3	11.2	15.6	25.4
2	8.8	11.3	16.1	17.0	13.2	16.5
16	19.6	19.0	19.1	19.1	19.1	47.9
100	22.0	22.3	19.9	22.4	23.9	25.0

*** Speed of ZGTSV in megaflops ***

NRHS \ N	50	100	200	300	400	500
1	6.0	9.8	8.3	11.2	11.4	11.8

2	.0	.0	.0	.0	.0	3.8
16	.0	4.9	9.9	14.9	9.9	12.4
100	14.8	10.0	10.0	10.0	10.9	10.0

*** Speed of ZPOTRF in megaflops ***

ZPOTRF with UPLO = 'U'

N NB	50	100	200	300	400	500
1	.0	22.7	30.8	31.8	32.8	32.6
16	17.4	27.3	30.0	30.7	33.1	33.9
32	17.4	34.1	31.7	35.2	32.8	34.0
48	.0	27.3	30.0	34.2	34.6	33.7
64	17.4	27.3	32.7	32.7	33.5	33.9

ZPOTRF with UPLO = 'L'

N NB	50	100	200	300	400	500
1	17.4	27.3	30.0	36.3	35.5	35.8
16	17.4	34.1	34.8	36.6	38.7	39.6
32	17.4	27.3	36.0	35.9	38.0	37.4
48	8.7	34.1	33.7	37.0	38.1	38.4
64	17.4	27.3	34.8	36.6	37.1	37.6

*** Speed of ZPOTRS in megaflops ***

ZPOTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	.0	.0	32.1	36.1	32.0	33.4
2	.0	16.1	32.1	36.1	36.6	36.4
16	32.3	32.2	32.1	36.1	36.6	36.0
100	25.3	32.2	33.4	35.2	36.5	34.9

ZPOTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	.0	.0	32.1	36.1	42.7	33.4
2	4.0	8.0	32.1	28.8	42.7	33.4
16	32.3	42.9	32.1	33.0	36.6	36.0
100	20.2	28.7	34.5	35.0	35.5	35.8

*** Speed of ZPOTRI in megaflops ***

ZPOTRI with UPLO = 'U'

N NB	50	100	200	300	400	500
1	17.3	30.2	34.7	36.6	37.0	37.4

2	6.2	16.0	12.9	16.0	18.6	19.3
16	13.8	19.7	14.8	22.3	29.8	16.5
100	14.8	14.9	30.0	30.1	24.1	30.1

*** Speed of ZPOTRF in megaflops ***

ZPOTRF with UPLO = 'U'

N NB	50	100	200	300	400	500
1	43.6	45.5	44.9	45.9	45.6	46.0
16	34.8	45.5	41.5	44.2	44.0	44.1
32	34.9	45.5	44.9	43.7	44.0	43.9
48	34.8	45.4	41.5	43.7	44.0	44.1
64	34.9	45.5	43.1	44.8	44.0	44.1

ZPOTRF with UPLO = 'L'

N NB	50	100	200	300	400	500
1	26.1	45.5	53.9	55.8	56.8	56.9
16	34.9	54.6	56.8	57.6	59.2	59.6
32	40.7	45.4	56.8	58.5	59.2	59.2
48	40.7	54.6	56.8	57.6	58.4	59.4
64	40.7	54.5	56.8	57.6	59.2	59.4

*** Speed of ZPOTRS in megaflops ***

ZPOTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	21.2	32.2	32.1	36.1	42.7	50.1
2	36.4	42.9	64.1	48.1	51.3	44.5
16	43.1	42.9	57.0	50.2	47.7	49.3
100	40.4	44.7	47.2	48.7	48.4	48.8

ZPOTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	31.0	40.2	42.8	48.1	51.3	50.0
2	33.7	42.9	42.8	48.1	42.7	50.1
16	43.1	42.9	46.7	48.1	48.8	49.3
100	40.4	44.7	47.2	48.4	48.5	48.9

*** Speed of ZPOTRI in megaflops ***

ZPOTRI with UPLO = 'U'

N NB	50	100	200	300	400	500
1	34.6	54.3	58.2	58.4	58.7	58.7

16	34.6	38.8	36.5	36.6	37.4	39.1
32	34.6	34.0	34.2	38.5	37.5	38.5
48	34.6	34.0	36.5	39.6	38.4	38.6
64	34.6	38.8	36.5	38.7	39.0	39.7

ZPOTRI with UPLO = 'L'

N NB	50	100	200	300	400	500
1	34.6	30.2	33.1	34.0	34.0	34.2
16	17.3	34.0	34.7	37.3	36.3	36.9
32	17.3	30.2	34.7	35.7	36.3	36.6
48	34.6	27.2	35.3	35.5	36.0	36.7
64	34.6	34.0	33.1	35.0	36.3	37.2

*** Speed of ZPPTRF in megaflops ***

ZPPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	17.4	27.3	34.8	33.9	33.1	35.2

ZPPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	.0	45.5	44.9	43.7	44.7	43.9

*** Speed of ZPPTRS in megaflops ***

ZPPTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	.0	8.0	32.1	36.1	32.0	40.0
2	.0	.0	32.1	28.8	42.7	33.4
16	32.3	32.2	32.1	37.2	37.3	36.0
100	33.7	33.5	36.9	35.7	37.3	37.0

ZPPTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	2.0	8.0	32.1	36.1	32.0	33.4
2	.0	.0	32.1	36.1	42.7	44.5
16	.0	32.2	34.2	37.2	38.7	37.7
100	33.7	32.2	34.5	35.5	36.3	36.5

*** Speed of ZPPTRI in megaflops ***

ZPPTRI with UPLO = 'U'

16	34.6	54.3	55.2	57.0	57.2	57.5
32	34.6	68.0	53.8	57.0	56.8	57.5
48	34.6	54.4	56.7	57.5	56.8	57.6
64	46.1	54.3	53.8	56.6	56.8	57.6

ZPOTRI with UPLO = 'L'

N NB	50	100	200	300	400	500
1	46.1	54.4	50.1	51.4	51.8	52.0
16	34.6	45.3	48.9	50.0	49.8	49.9
32	34.6	54.4	47.9	49.3	49.8	50.2
48	34.6	45.3	48.9	49.6	49.7	49.9
64	34.6	45.3	48.9	49.3	49.7	50.0

*** Speed of ZPPTRF in megaflops ***

ZPPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	34.9	45.5	44.9	44.8	44.5	44.5

ZPPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	60.9	68.2	67.4	65.9	66.0	66.2

*** Speed of ZPPTRS in megaflops ***

ZPPTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	36.4	42.9	42.8	54.1	42.7	50.0
2	36.4	40.2	42.8	48.1	51.2	50.1
16	43.1	51.5	51.3	50.2	50.0	50.8
100	50.5	50.2	49.4	49.7	50.1	50.2

ZPPTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	29.6	32.1	42.8	48.1	51.3	50.0
2	37.7	48.2	42.8	48.1	51.3	50.1
16	43.1	42.9	51.3	50.2	50.0	52.5
100	50.5	50.2	49.4	50.4	50.7	50.8

*** Speed of ZPPTRI in megaflops ***

ZPPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	17.3	38.8	43.9	41.9	43.0	42.5

ZPPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	30.2	35.9	34.5	37.4	37.1

*** Speed of ZPTTRF in megaflops ***

N	50	100	200	300	400	500
	.0	.0	.0	.0	.0	.0

*** Speed of ZPTTRS in megaflops ***

ZPTTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	10.5	.0	17.6
100	10.8	10.9	14.6	16.5	14.6	15.7

ZPTTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	10.5	7.0	17.6
100	10.8	21.8	14.6	13.2	14.6	15.7

*** Speed of ZPTSV in megaflops ***

N NRHS	50	100	200	300	400	500
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	1.7	.0	.0
16	.0	.0	.0	11.0	14.6	18.3
100	10.9	11.0	14.7	13.3	14.7	13.8

*** Speed of ZHETRF in megaflops ***

ZHETRF with UPLO = 'U'

N NB	50	100	200	300	400	500
1	8.8	34.1	38.5	39.9	39.7	40.8

N	50	100	200	300	400	500
	57.7	54.4	63.3	63.0	63.0	63.2

ZPPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	57.7	54.4	53.8	52.5	52.8	52.7

*** Speed of ZPTTRF in megaflops ***

N	50	100	200	300	400	500
	4.3	7.6	20.6	7.5	8.7	21.6

*** Speed of ZPTTRS in megaflops ***

ZPTTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	10.7	6.7	14.0	12.2	11.0	13.7
2	15.5	9.2	9.6	16.4	36.7	16.5
16	17.3	12.8	14.0	21.0	21.1	52.5
100	18.1	21.8	21.9	21.9	29.3	22.0

ZPTTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	11.4	19.6	21.0	32.2	13.2	18.6
2	17.5	13.5	13.6	32.8	11.4	15.4
16	20.8	17.5	18.7	26.3	23.4	70.0
100	25.3	43.7	29.2	26.3	29.3	27.5

*** Speed of ZPTSV in megaflops ***

N NRHS	50	100	200	300	400	500
1	10.0	9.3	27.2	10.8	18.6	11.7
2	8.3	15.8	24.2	8.7	23.1	15.9
16	16.2	16.3	21.9	18.3	21.9	18.3
100	21.8	43.9	44.1	33.1	29.5	36.8

*** Speed of ZHETRF in megaflops ***

ZHETRF with UPLO = 'U'

N NB	50	100	200	300	400	500
1	26.2	45.5	56.8	58.5	59.2	59.4

16	17.5	27.3	33.7	34.2	37.5	35.7
32	8.8	22.8	32.7	33.6	34.6	37.5
48	17.5	27.3	34.8	31.3	34.2	35.6
64	.0	34.1	30.0	31.0	34.1	35.6

ZHETRF with UPLO = 'L'

N	50	100	200	300	400	500
NB						
1	17.5	45.5	36.0	37.0	39.7	42.6
16	17.5	27.3	30.8	34.5	35.2	36.2
32	17.5	27.3	31.7	34.9	34.6	34.7
48	17.5	22.8	30.8	33.3	32.4	35.2
64	17.5	22.8	30.8	31.0	32.9	35.5

*** Speed of ZHETRS in megaflops ***

ZHETRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	.0	8.0	32.0	36.0	42.6	20.0
2	.0	.0	32.0	28.8	36.5	36.3
16	.0	31.9	36.5	36.0	34.1	37.6
100	24.9	29.6	32.6	31.3	34.2	35.7

ZHETRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	32.0	36.0	32.0	33.3
2	.0	16.0	32.0	36.0	36.5	57.1
16	31.8	31.9	36.5	37.1	38.6	38.1
100	19.9	29.6	31.3	34.8	36.7	37.1

*** Speed of ZHETRI in megaflops ***

ZHETRI with UPLO = 'U'

N	50	100	200	300	400	500
	33.4	44.5	47.4	45.0	49.8	48.0

ZHETRI with UPLO = 'L'

N	50	100	200	300	400	500
	33.4	44.5	47.4	47.1	47.7	48.8

*** Speed of ZHPTRF in megaflops ***

16	23.4	45.5	49.1	52.6	54.7	55.6
32	29.2	45.5	49.0	52.6	54.7	56.0
48	29.2	34.1	46.9	51.8	54.0	55.1
64	35.0	45.5	49.0	51.8	53.3	55.1

ZHETRF with UPLO = 'L'

N	50	100	200	300	400	500
NB						
1	26.2	68.2	56.8	60.5	60.4	60.9
16	35.0	45.5	49.0	52.6	55.0	55.6
32	26.2	45.6	49.1	52.6	54.7	55.6
48	29.2	34.2	46.9	51.1	54.0	55.1
64	35.0	45.5	46.9	51.1	53.3	54.4

*** Speed of ZHETRS in megaflops ***

ZHETRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	18.6	26.6	31.9	36.0	51.2	49.9
2	27.9	42.6	47.9	71.9	51.1	57.1
16	42.5	51.1	51.1	50.0	52.5	52.4
100	39.8	46.9	50.7	51.0	52.0	52.2

ZHETRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	18.9	27.9	32.0	35.9	42.7	39.9
2	31.8	47.8	63.9	71.9	63.9	66.6
16	42.5	42.6	51.1	50.0	51.2	52.4
100	39.8	46.9	50.7	51.0	51.8	52.3

*** Speed of ZHETRI in megaflops ***

ZHETRI with UPLO = 'U'

N	50	100	200	300	400	500
	55.6	88.9	73.6	75.8	75.5	75.9

ZHETRI with UPLO = 'L'

N	50	100	200	300	400	500
	66.8	66.7	79.0	79.1	79.0	79.0

*** Speed of ZHPTRF in megaflops ***

ZHPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	.0	45.5	43.2	40.3	41.5	43.2

ZHPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	17.5	34.1	38.5	42.2	42.1	44.6

*** Speed of ZHPTRS in megaflops ***

ZHPTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	.0	8.0	32.0	24.0	42.6	33.3
2	.0	.0	32.0	28.8	42.6	36.3
16	31.8	31.9	39.3	41.1	37.2	36.3
100	39.8	30.7	36.3	36.7	36.1	37.4

ZHPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	8.0	32.0	24.0	32.0	40.0
2	.0	.0	32.0	48.0	42.6	40.0
16	31.8	31.9	36.5	37.1	38.6	35.9
100	28.4	31.9	35.1	36.5	39.1	35.7

*** Speed of ZHPTRI in megaflops ***

ZHPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	53.3	54.7	47.4	46.6	47.9

ZHPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	33.4	66.7	46.4	46.8	49.2	49.8

*** Speed of ZSYTRF in megaflops ***

ZSYTRF with UPLO = 'U'

N	50	100	200	300	400	500
NB						

ZHPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	43.7	68.2	60.0	60.5	61.3	62.0

ZHPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	58.4	68.2	60.0	62.5	63.6	64.1

*** Speed of ZHPTRS in megaflops ***

ZHPTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	23.2	35.9	47.9	35.9	42.7	49.9
2	31.8	47.9	42.7	57.6	51.2	57.1
16	47.7	63.8	63.9	60.6	56.8	53.3
100	49.8	49.9	50.7	51.8	52.4	52.5

ZHPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	21.9	23.9	32.0	35.9	51.2	50.0
2	33.2	47.8	63.9	71.9	64.0	57.1
16	47.7	63.9	64.0	57.5	58.5	53.3
100	49.8	49.9	50.7	51.0	51.8	52.3

*** Speed of ZHPTRI in megaflops ***

ZHPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	66.6	66.7	76.2	77.4	77.9	77.9

ZHPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	66.6	89.0	82.1	79.1	79.4	79.9

*** Speed of ZSYTRF in megaflops ***

ZSYTRF with UPLO = 'U'

N	50	100	200	300	400	500
NB						

1	17.5	34.1	45.0	42.2	42.1	44.3
16	.0	34.1	30.8	34.9	36.4	36.6
32	17.5	27.3	33.7	35.2	37.3	35.2
48	17.5	22.8	30.8	34.5	35.0	35.2
64	8.8	22.8	30.0	30.7	32.9	33.7

ZSYTRF with UPLO = 'L'

N NB	50	100	200	300	400	500
1	17.5	27.3	38.5	41.2	43.6	43.3
16	17.5	27.3	31.7	32.1	35.0	33.6
32	17.5	27.3	32.7	31.3	35.0	36.2
48	17.5	27.3	30.8	31.0	35.2	35.3
64	17.5	19.5	25.1	30.2	34.1	35.9

*** Speed of ZSYTRS in megaflops ***

ZSYTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	.0	.0	16.0	36.0	42.6	33.3
2	4.0	16.0	63.9	36.0	42.6	40.0
16	31.8	31.9	36.5	37.1	37.2	36.8
100	28.4	31.9	35.9	35.4	37.0	37.2

ZSYTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	.0	8.0	.0	36.0	32.0	33.3
2	.0	.0	21.3	36.0	42.6	40.0
16	31.8	31.9	39.3	36.0	35.9	39.0
100	22.1	33.3	34.7	37.9	35.7	39.5

*** Speed of ZSYTRI in megaflops ***

ZSYTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	44.5	53.3	50.4	50.2	51.3

ZSYTRI with UPLO = 'L'

N	50	100	200	300	400	500
	33.4	53.3	54.7	60.5	60.5	57.2

*** Speed of ZSPTRF in megaflops ***

ZSPTRF with UPLO = 'U'

1	26.2	68.2	60.0	61.5	62.6	62.5
16	35.0	34.2	49.0	53.3	54.7	54.9
32	29.2	45.5	46.9	50.4	53.3	54.4
48	26.2	45.5	46.9	49.0	52.0	54.5
64	35.0	34.2	45.0	48.4	51.4	52.6

ZSYTRF with UPLO = 'L'

N NB	50	100	200	300	400	500
1	43.7	45.5	56.8	61.5	61.3	62.0
16	29.2	45.6	46.9	51.8	54.0	54.7
32	26.2	34.1	45.0	50.4	53.6	54.4
48	26.2	34.2	45.0	49.0	52.0	53.3
64	40.9	45.6	43.2	49.0	51.1	52.8

*** Speed of ZSYTRS in megaflops ***

ZSYTRS with UPLO = 'U'

N NRHS	50	100	200	300	400	500
1	23.9	32.0	47.9	35.9	42.7	49.9
2	34.5	47.8	63.9	48.0	63.9	57.1
16	47.7	51.1	51.1	54.8	52.5	54.2
100	39.8	46.9	52.4	52.9	52.9	53.3

ZSYTRS with UPLO = 'L'

N NRHS	50	100	200	300	400	500
1	24.9	19.9	47.9	35.9	51.2	50.0
2	35.9	47.9	42.7	57.6	51.2	57.1
16	47.7	42.5	56.8	52.3	53.9	53.3
100	49.8	49.9	52.4	52.5	53.3	54.0

*** Speed of ZSYTRI in megaflops ***

ZSYTRI with UPLO = 'U'

N	50	100	200	300	400	500
	66.8	88.8	92.8	96.0	97.0	97.5

ZSYTRI with UPLO = 'L'

N	50	100	200	300	400	500
	66.6	133.2	97.0	101.4	101.0	100.7

*** Speed of ZSPTRF in megaflops ***

ZSPTRF with UPLO = 'U'

N	50	100	200	300	400	500
	8.8	34.1	40.0	41.7	40.1	43.8

ZSPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	17.5	45.5	41.5	42.7	44.2	46.3

*** Speed of ZSPTRS in megaflops ***

ZSPTRS with UPLO = 'U'

N / NRHS	50	100	200	300	400	500
1	.0	.0	32.0	36.0	32.0	33.3
2	.0	.0	32.0	36.0	42.6	40.0
16	31.8	42.6	42.6	38.4	40.9	37.6
100	28.4	34.7	36.3	34.3	38.2	37.4

ZSPTRS with UPLO = 'L'

N / NRHS	50	100	200	300	400	500
1	.0	.0	32.0	24.0	32.0	33.3
2	.0	16.0	32.0	36.0	42.6	36.3
16	31.8	42.6	36.5	38.4	35.9	43.2
100	28.4	34.7	35.9	37.7	37.0	37.8

*** Speed of ZSPTRI in megaflops ***

ZSPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	.0	53.3	54.7	56.7	57.1	61.1

ZSPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	16.7	53.3	48.5	51.8	51.3	54.5

*** Speed of ZTRTRI in megaflops ***

ZTRTRI with UPLO = 'U'

N / NB	50	100	200	300	400	500
1	.0	33.8	41.3	38.1	38.2	39.4
16	17.2	33.8	38.4	38.5	39.5	37.4

N	50	100	200	300	400	500
	61.2	91.1	67.5	64.8	65.5	65.1

ZSPTRF with UPLO = 'L'

N	50	100	200	300	400	500
	35.0	68.2	60.0	61.5	61.7	62.7

*** Speed of ZSPTRS in megaflops ***

ZSPTRS with UPLO = 'U'

N / NRHS	50	100	200	300	400	500
1	18.9	31.9	53.3	35.9	42.6	50.0
2	33.8	47.8	42.6	71.9	64.0	57.1
16	53.1	63.9	64.0	60.6	58.5	54.2
100	66.3	57.0	52.4	52.9	53.1	54.0

ZSPTRS with UPLO = 'L'

N / NRHS	50	100	200	300	400	500
1	27.9	35.9	31.9	35.9	42.6	50.0
2	31.8	47.8	63.9	71.9	64.0	57.1
16	63.6	63.9	64.0	63.9	56.9	54.2
100	49.8	53.2	52.4	53.3	53.5	53.6

*** Speed of ZSPTRI in megaflops ***

ZSPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	111.3	89.0	106.7	104.3	105.4	105.8

ZSPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	66.6	89.0	106.7	100.0	100.4	100.7

*** Speed of ZTRTRI in megaflops ***

ZTRTRI with UPLO = 'U'

N / NB	50	100	200	300	400	500
1	45.9	67.6	59.7	62.4	61.6	61.7
16	34.3	45.2	53.7	57.4	56.4	56.3

32	.0	33.8	35.8	37.7	39.7	38.1
48	.0	33.8	37.1	38.1	38.8	38.6
64	17.2	33.8	38.4	36.9	39.5	37.4

ZTRTRI with UPLO = 'L'

N	50	100	200	300	400	500
NB						
1	.0	45.1	37.1	36.5	37.7	38.3
16	17.2	45.1	37.1	38.1	37.2	39.0
32	17.2	27.1	37.1	38.9	39.1	39.0
48	.0	45.1	37.1	39.8	38.4	39.0
64	17.2	45.1	35.8	36.5	38.8	39.2

*** Speed of ZTRTRS in megaflops ***

ZTRTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	16.0	36.1	64.1	50.1
2	.0	.0	32.1	36.1	32.0	33.4
16	.0	32.2	36.7	33.9	36.6	39.1
100	25.3	33.5	34.1	36.1	37.7	38.9

ZTRTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	36.1	64.1	33.4
2	.0	8.0	32.1	36.1	32.0	40.0
16	.0	32.2	32.1	36.1	38.0	36.4
100	33.7	36.5	35.6	37.6	36.8	38.2

*** Speed of ZTPTRI in megaflops ***

ZTPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	17.2	33.8	37.1	39.3	38.9	43.4

ZTPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	.0	45.1	39.8	42.1	39.3	38.5

*** Speed of ZTPTRS in megaflops ***

ZTPTRS with UPLO = 'U'

N	50	100	200	300	400	500

32	42.9	45.1	56.6	56.5	56.4	56.5
48	40.1	67.6	56.6	56.5	56.4	56.5
64	42.9	45.2	53.7	55.7	56.4	56.5

ZTRTRI with UPLO = 'L'

N	50	100	200	300	400	500
NB						
1	34.4	67.6	59.7	61.3	61.6	61.7
16	42.9	45.2	53.7	55.7	56.0	56.3
32	34.3	67.6	53.7	55.7	56.4	56.3
48	45.9	67.6	56.6	57.4	56.0	56.5
64	68.7	45.2	56.6	55.7	56.7	56.5

*** Speed of ZTRTRS in megaflops ***

ZTRTRS with UPLO = 'U'

N	50	100	200	300	400	500
NRHS						
1	27.6	32.1	42.8	54.0	32.0	66.7
2	23.2	40.2	48.1	48.1	64.0	50.1
16	40.4	42.8	51.3	52.4	54.0	57.2
100	33.7	44.7	51.7	52.3	53.4	53.8

ZTRTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	24.6	32.1	48.1	54.0	42.8	50.0
2	25.2	40.2	53.5	36.0	64.0	66.8
16	40.4	42.8	51.3	52.5	51.3	55.2
100	33.7	50.3	55.3	53.0	53.0	53.8

*** Speed of ZTPTRI in megaflops ***

ZTPTRI with UPLO = 'U'

N	50	100	200	300	400	500
	42.9	45.2	59.7	62.4	63.4	63.1

ZTPTRI with UPLO = 'L'

N	50	100	200	300	400	500
	51.5	45.2	63.2	62.4	62.5	62.6

*** Speed of ZTPTRS in megaflops ***

ZTPTRS with UPLO = 'U'

N	50	100	200	300	400	500

NRHS						
1	.0	4.0	.0	36.1	32.0	50.1
2	.0	.0	32.1	36.1	32.0	33.4
16	.0	64.3	42.8	36.1	41.0	37.2
100	33.7	36.5	36.5	36.8	40.1	39.1

ZTPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	.0	.0	.0	36.1	32.0	33.4
2	2.0	.0	32.1	36.1	42.7	50.1
16	16.2	32.2	42.8	36.1	36.6	40.0
100	33.7	30.9	38.2	38.0	38.1	40.4

*** Speed of ZGEQRF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	17.3	34.0	37.8	39.9	38.6	39.0
(16, 48)	34.6	34.0	34.2	36.5	35.5	36.5
(32, 128)	34.6	34.8	33.9	34.1	35.2	36.0
(48, 128)	69.3		33.6	33.5	34.2	34.1
(64, 128)	69.3	36.2	30.5	33.5	34.5	34.0

*** Speed of ZUNGQR in megaflops ***

K = min(M,N)

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	34.1	38.5	38.0	41.2	38.1	38.5
(16, 48)	34.1	35.9	36.4	36.5	34.5	35.8
(32, 128)	34.1	38.5	33.0	33.9	35.1	36.2
(48, 128)	34.1	38.5	32.5	33.8	34.0	33.6
(64, 128)	68.1	38.5	31.1	32.2	32.7	34.0

*** Speed of ZUNMQR in megaflops ***

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	2.1	.0	32.3	36.2	42.9	40.1
16	2.1	4.1	10.8	6.6	6.1	6.5
32	2.1	4.1	2.9	3.6	4.0	4.1
48	2.1	1.6	2.3	2.4	2.3	2.6
64	.0	2.0	1.8	2.0	1.8	2.0

NRHS						
1	29.3	38.2	48.2	54.0	42.7	50.0
2	28.3	40.2	48.1	48.1	64.1	66.8
16	43.1	48.3	51.3	57.7	57.0	56.2
100	50.5	50.2	53.5	54.6	56.2	56.2

ZTPTRS with UPLO = 'L'

N	50	100	200	300	400	500
NRHS						
1	29.0	40.2	32.0	54.0	64.1	50.1
2	22.2	36.1	48.1	48.1	42.7	50.1
16	43.1	64.3	51.3	57.7	57.0	57.2
100	50.5	44.7	53.5	55.5	56.2	56.2

*** Speed of ZGEQRF in megaflops ***

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	23.1	49.4	51.9	53.1	52.5	52.8
(16, 48)	34.6	45.3	48.9	49.3	50.0	50.3
(32, 128)	46.1	49.4	47.9	48.5	49.1	49.7
(48, 128)	34.6	49.4	46.3	47.0	48.1	48.8
(64, 128)	34.6	49.4	44.0	45.7	47.0	47.9

*** Speed of ZUNGQR in megaflops ***

K = min(M,N)

M	50	100	200	300	400	500
N	50	100	200	300	400	500
(NB, NX)						
(1, 0)	68.1	49.0	51.7	52.8	52.7	52.8
(16, 48)	45.5	44.9	48.2	49.7	50.3	50.5
(32, 128)	45.5	59.9	47.7	48.5	49.1	49.7
(48, 128)	45.5	53.9	46.1	47.1	48.1	48.8
(64, 128)	45.4	53.9	43.3	45.7	46.6	47.8

*** Speed of ZUNMQR in megaflops ***

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.8	32.5	48.4	72.3	64.2	50.1
16	4.1	8.1	8.1	9.0	9.2	9.6
32	3.5	4.1	4.6	4.8	5.4	5.0
48	2.1	2.7	3.2	3.3	3.5	3.5
64	24.8	2.0	2.3	2.6	2.6	2.6

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 2

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		.0	16.3	32.3	48.3	36.7	33.5
16		4.1	16.3	12.9	11.1	11.7	10.8
32		.0	5.4	6.5	6.6	8.0	7.4
48		4.1	4.1	4.3	4.8	4.8	5.0
64		.0	2.7	3.4	3.6	3.8	3.9

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 16

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		33.1	43.4	39.7	36.2	38.8	37.8
16		16.6	32.6	27.2	30.5	28.2	27.9
32		11.0	21.7	22.5	22.7	23.9	22.6
48		16.6	18.6	19.1	19.3	20.2	21.0
64		33.1	16.3	15.7	16.6	17.6	16.9

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 100

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		29.6	35.4	36.7	37.9	38.4	38.6
16		23.0	32.6	33.3	33.8	32.1	33.6
32		25.9	29.1	30.7	31.1	32.8	32.7
48		23.0	23.9	29.1	31.1	31.2	30.9
64		41.4	23.9	26.0	27.6	29.7	30.3

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 1

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		2.1	.0	32.3	72.4	32.1	33.5
16		2.1	8.1	5.4	6.6	6.4	6.9
32		1.0	2.7	3.6	3.4	3.7	3.6
48		1.0	2.7	2.5	2.8	2.5	2.6
64		.0	1.6	1.9	1.8	1.9	1.9

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 2

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		.0	.0	32.3	36.2	51.4	40.1
16		4.1	4.1	10.8	11.1	11.7	10.8
32		4.1	4.1	5.9	6.6	7.3	6.6

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 2

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		35.2	49.0	64.5	72.3	64.2	57.4
16		10.3	16.3	16.1	16.1	17.1	16.1
32		6.2	8.1	9.2	9.1	9.2	9.3
48		4.1	5.4	5.9	6.3	6.4	6.5
64		35.2	4.1	4.6	4.8	4.9	5.0

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 16

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		49.6	65.1	57.3	55.2	54.1	53.5
16		33.1	32.6	43.0	40.0	39.6	40.7
32		22.1	26.0	30.4	31.3	32.6	32.4
48		22.1	21.7	25.8	26.3	26.7	27.2
64		49.6	18.6	21.5	22.7	23.1	23.3

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 100

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		51.7	50.9	52.1	53.3	53.3	53.5
16		41.4	45.2	47.5	48.3	48.9	49.0
32		41.4	40.7	44.2	45.5	46.4	46.5
48		34.5	37.0	41.4	43.1	43.9	44.4
64		51.7	37.0	39.9	40.7	41.5	42.1

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 1

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		24.8	36.6	48.4	36.2	64.2	66.8
16		6.2	5.4	8.1	9.1	9.9	9.6
32		4.1	4.1	4.6	4.8	5.1	5.1
48		2.1	2.7	3.6	3.4	3.4	3.5
64		25.8	2.7	2.5	2.5	2.6	2.6

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 2

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		37.4	40.7	97.3	48.4	64.4	66.8
16		10.3	16.3	16.1	14.5	16.1	16.7
32		8.3	8.2	9.2	9.7	9.2	9.3

48	4.1	3.3	4.6	4.8	4.7	5.3
64	.0	4.1	3.2	3.5	4.0	3.7

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	33.1	43.4	39.7	38.6	38.8	39.2
16	33.1	32.6	28.7	29.0	29.4	29.2
32	16.6	21.7	23.5	22.7	25.1	23.8
48	11.0	16.3	19.1	19.0	19.8	20.1
64	.0	14.5	16.7	16.3	17.4	17.5

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	34.5	40.7	36.7	38.1	38.1	39.0
16	25.9	33.9	32.0	34.8	35.3	35.5
32	23.0	27.1	30.7	31.8	31.7	35.4
48	20.7	25.4	29.3	30.2	31.4	31.5
64	29.6	25.4	27.4	28.2	29.6	29.3

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	2.8	11.1	11.1	9.0	8.4	8.4
16	2.8	5.6	5.5	5.8	5.9	5.4
32	2.8	3.7	3.7	3.4	3.8	4.1
48	2.8	2.8	2.8	2.8	2.9	3.0
64	.0	2.2	2.2	2.6	2.4	2.3

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	9.6	12.7	13.2	12.7	12.5
16	.0	9.6	8.5	8.2	8.7	8.5
32	.0	4.8	7.6	5.7	5.9	6.8
48	4.8	4.8	4.5	4.8	4.8	4.9
64	.0	3.8	3.8	4.6	3.7	3.9

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500

48	4.1	5.4	6.5	6.3	6.4	6.5
64	35.2	5.4	4.6	5.0	4.9	5.1

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	49.6	43.4	51.7	52.7	52.7	53.5
16	33.2	32.5	39.7	38.6	39.6	39.6
32	33.2	32.5	30.4	31.3	32.1	32.1
48	22.1	26.0	24.6	26.3	26.7	27.4
64	55.4	21.7	22.5	22.7	23.1	23.4

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.9	54.3	52.9	53.6	53.3	53.7
16	41.4	45.2	47.5	48.6	48.5	49.2
32	41.5	42.9	44.2	45.8	46.6	46.6
48	34.5	38.8	41.9	42.9	43.7	44.4
64	51.7	38.8	39.4	40.9	41.6	42.2

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	20.6	22.2	22.1	33.1	29.4	30.6
16	8.4	11.1	8.9	11.0	10.4	10.6
32	4.2	5.5	5.5	6.6	6.5	6.1
48	2.8	3.7	4.0	4.1	4.4	4.4
64	16.8	2.8	3.4	3.4	3.4	3.4

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	29.0	38.3	38.2	42.9	43.5	43.3
16	11.3	14.4	15.3	17.2	16.9	16.4
32	9.7	9.6	9.6	10.1	10.2	10.1
48	7.3	6.4	6.9	7.1	7.3	7.3
64	29.0	6.4	5.1	5.5	5.6	5.7

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500

NB						
1	33.4	33.1	32.9	28.9	32.3	29.6
16	33.4	33.1	27.7	27.5	26.3	27.1
32	33.4	22.1	22.9	23.7	22.4	24.7
48	11.1	18.9	18.2	18.8	18.6	19.5
64	33.4	16.5	14.2	17.7	17.8	17.9

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.2	40.6	39.9	37.6	40.9	40.2
16	25.6	35.3	38.9	38.4	38.4	38.6
32	34.1	29.0	32.9	34.0	34.2	35.4
48	25.6	29.0	30.7	33.9	33.5	34.0
64	34.1	29.0	30.7	31.7	31.6	31.5

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	11.1	11.1	9.0	9.3	7.7
16	2.8	5.6	6.3	5.5	5.5	5.6
32	.0	5.6	4.0	3.7	4.0	4.2
48	1.4	2.8	2.8	2.8	3.0	3.0
64	.0	2.2	2.2	2.7	2.3	2.4

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	4.8	19.2	15.3	13.2	11.7	12.2
16	4.8	6.4	9.5	7.8	8.0	8.4
32	4.8	4.8	6.4	6.1	6.0	6.6
48	2.4	4.8	4.5	5.0	4.6	4.9
64	4.8	2.4	3.8	4.5	3.6	4.0

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	33.4	33.1	32.9	32.9	33.9	31.0
16	16.7	26.5	29.3	25.2	26.3	26.9
32	16.7	33.1	22.9	22.7	23.9	23.1
48	16.7	18.9	17.0	20.4	18.8	19.3
64	16.7	18.9	17.0	16.9	16.7	17.4

NB						
1	50.1	44.1	52.7	51.4	51.2	50.5
16	33.4	44.1	43.9	43.8	42.9	43.2
32	25.1	33.0	32.9	33.8	33.9	34.2
48	16.7	22.1	26.3	27.5	28.4	28.5
64	50.1	22.1	22.9	24.1	24.2	24.7

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	68.5	62.4	59.8	59.9	59.1	59.2
16	51.1	50.7	56.6	57.1	57.8	58.0
32	40.9	45.1	51.2	52.5	53.9	54.1
48	34.1	40.6	47.5	48.0	49.2	49.5
64	68.2	38.6	43.0	45.3	46.2	47.0

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	18.2	22.2	29.6	33.1	29.4	30.6
16	7.0	7.4	11.0	9.9	10.4	10.6
32	4.2	5.5	6.3	6.2	6.1	6.4
48	2.8	3.7	4.0	4.3	4.4	4.4
64	19.6	2.8	3.2	3.3	3.3	3.4

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	29.0	38.3	50.9	43.0	38.1	43.3
16	12.1	19.2	15.3	15.6	16.0	16.4
32	7.3	7.7	9.6	9.5	9.8	10.1
48	4.8	6.4	6.9	7.1	7.3	7.3
64	29.0	4.8	5.5	5.5	5.6	5.7

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	50.1	53.0	52.7	51.4	52.5	50.5
16	33.4	44.1	43.9	42.2	42.0	42.6
32	33.4	33.0	31.0	32.9	33.9	34.2
48	22.3	26.4	27.7	27.5	28.4	28.5
64	44.7	22.0	21.9	24.1	24.4	24.3

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 100

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		51.2	40.6	39.9	39.8	39.8	40.7
16		34.1	38.6	37.5	36.8	38.8	38.7
32		34.1	31.2	34.0	33.1	31.6	36.0
48		29.3	29.0	29.9	35.2	34.2	34.1
64		41.0	29.0	26.9	31.9	31.3	31.7

*** Speed of ZGELQF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	34.7	32.0	38.8	38.6	41.3	40.9
(16,	48)	34.7	30.2	31.9	35.0	36.9	36.4
(32,	128)	34.7	32.0	31.4	34.8	35.0	36.5
(48,	128)	23.1	36.2	31.0	32.6	34.5	35.5
(64,	128)	34.7	38.8	30.1	30.3	33.9	34.3

*** Speed of ZUNGLQ in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	34.1	33.7	40.1	39.7	40.4	39.9
(16,	48)	34.1	31.7	32.8	36.1	36.8	37.1
(32,	128)	34.1	38.5	33.0	36.7	36.1	37.3
(48,	128)	68.2	36.0	33.0	33.5	36.0	36.2
(64,	128)	68.2	38.5	29.8	34.2	33.3	35.1

*** Speed of ZUNMLQ in megaflops ***

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 1

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500
NB							
1		.0	8.1	4.6	4.0	3.8	3.6
16		.0	4.1	2.9	2.7	2.6	2.6
32		1.0	2.0	2.3	2.2	2.1	2.0
48		2.1	2.0	1.7	1.6	1.8	1.7
64		.0	1.6	1.3	1.5	1.4	1.4

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 2

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 100

	N	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		68.2	57.9	59.8	59.9	59.9	58.8
16		51.3	54.1	55.6	57.5	57.2	58.0
32		41.0	50.7	51.2	53.3	53.2	53.8
48		34.2	42.7	46.1	48.3	48.8	49.9
64		51.1	38.6	43.0	45.0	46.0	47.1

*** Speed of ZGELQF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	23.2	54.4	59.8	59.9	60.0	60.1
(16,	48)	46.4	49.4	55.2	56.6	57.4	57.9
(32,	128)	69.3	60.3	52.5	54.7	55.8	56.7
(48,	128)	69.3	54.4	51.3	52.7	54.4	55.4
(64,	128)	46.4	54.4	47.9	51.4	52.7	54.1

*** Speed of ZUNGLQ in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	68.1	59.9	61.3	60.0	59.4	59.6
(16,	48)	45.4	49.0	55.7	57.1	57.4	57.9
(32,	128)	34.0	59.9	53.0	54.3	55.5	56.6
(48,	128)	45.4	59.9	51.1	52.4	54.0	55.2
(64,	128)	45.4	59.9	48.2	50.9	52.2	54.0

*** Speed of ZUNMLQ in megaflops ***

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 1

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500
NB							
1		17.6	24.4	32.2	36.2	42.8	28.6
16		6.2	8.1	6.4	7.2	7.1	6.9
32		3.1	4.1	4.0	4.8	4.6	4.5
48		2.1	4.1	3.2	3.3	3.5	3.4
64		14.5	2.0	2.9	2.7	2.7	2.7

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 2

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500

NB						
1	.0	5.4	5.4	5.6	5.2	5.0
16	4.1	5.4	5.0	4.5	4.1	4.5
32	4.1	4.1	4.0	3.8	3.5	3.5
48	4.1	3.3	3.1	3.1	3.0	3.0
64	4.1	3.3	2.8	2.6	2.7	2.6

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	16.6	11.8	8.3	8.0	7.4	7.2
16	11.0	13.0	10.8	10.5	10.5	9.9
32	16.6	16.3	10.5	10.7	9.5	9.4
48	16.6	14.5	10.5	10.3	9.9	9.1
64	16.6	14.5	9.9	9.4	9.0	8.6

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	15.9	13.8	8.9	8.1	7.9	7.7
16	20.7	17.3	13.4	12.4	12.1	11.7
32	18.8	18.5	13.6	13.3	12.4	12.2
48	20.7	20.4	13.7	13.8	12.9	11.7
64	17.3	20.9	14.8	13.5	12.7	12.4

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	2.1	8.1	5.4	4.8	4.3	4.0
16	2.1	2.7	2.9	2.7	2.8	2.6
32	2.1	2.7	2.2	2.1	2.0	2.0
48	2.1	2.0	1.8	1.7	1.7	1.7
64	.0	1.4	1.4	1.5	1.4	1.4

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	8.1	5.9	6.3	6.0	5.3
16	.0	5.4	4.6	4.5	4.4	4.3
32	.0	5.4	3.8	3.8	3.7	3.5
48	2.1	3.3	3.1	3.2	3.1	3.0
64	.0	2.7	2.9	2.7	2.7	2.5

NB						
1	31.0	40.7	32.2	48.2	42.8	40.2
16	10.3	16.3	13.0	13.2	12.2	12.5
32	8.3	8.1	8.1	8.5	8.6	8.4
48	6.2	5.4	6.4	6.3	6.4	6.4
64	29.0	5.4	5.0	5.0	5.2	5.1

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	49.6	65.1	51.7	52.7	50.2	48.7
16	33.1	32.7	32.3	33.1	31.7	31.8
32	33.1	26.0	27.2	28.3	27.8	27.9
48	16.5	21.8	24.6	24.7	24.8	25.3
64	49.6	21.7	21.5	21.9	21.9	22.1

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	51.7	50.8	52.9	51.7	51.0	49.9
16	34.5	40.7	39.8	39.4	39.6	39.6
32	34.5	40.7	39.9	39.6	39.4	39.1
48	34.5	37.0	38.0	38.3	38.5	38.3
64	51.7	35.4	36.3	37.3	37.4	37.4

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	19.6	24.4	32.2	36.2	42.8	33.4
16	5.2	4.1	6.4	6.6	6.8	7.2
32	3.1	5.5	4.6	4.3	4.4	4.6
48	2.1	2.7	3.2	3.3	3.4	3.4
64	20.7	2.7	2.5	2.7	2.6	2.7

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	31.0	38.3	43.0	48.6	42.8	44.6
16	8.3	8.1	10.7	12.1	12.2	12.9
32	6.2	8.1	8.1	8.0	8.3	8.2
48	4.1	5.4	5.9	6.3	6.3	6.3
64	31.0	4.1	4.6	5.0	5.0	5.1

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	16.6	16.3	8.2	7.8	7.5	7.0
16	33.1	16.3	11.2	10.3	10.8	9.9
32	16.6	14.5	10.8	10.7	9.7	9.4
48	16.6	14.5	10.1	10.2	9.6	8.8
64	16.6	13.0	9.9	9.6	8.8	8.7

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	15.9	13.8	8.7	8.2	8.2	7.6
16	20.7	17.3	13.0	12.3	11.8	11.5
32	18.8	19.4	13.6	13.1	12.5	11.8
48	20.7	20.4	13.8	13.8	12.7	12.3
64	14.8	20.9	15.0	13.3	12.9	12.1

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	3.7	4.4	3.7	3.7	3.7
16	.0	3.7	3.2	3.1	3.0	2.9
32	2.8	3.7	2.5	2.4	2.5	2.5
48	1.4	2.8	2.1	2.1	2.1	2.0
64	.0	1.9	2.0	2.0	1.8	1.8

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	19.2	6.9	6.1	5.9	5.9
16	4.8	6.4	5.1	5.2	5.3	4.8
32	4.8	3.8	3.8	4.2	4.1	4.0
48	1.6	3.4		3.5	3.4	3.5
64	.0	3.0		3.0	3.0	3.0

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	33.4	26.5	22.9	22.7	21.9	22.3
16	33.4	22.1	20.3	21.1	20.8	19.8
32	16.7	14.7	18.2	17.9	17.8	18.2

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	49.6	43.4	51.6	50.3	50.2	47.9
16	33.1	32.5	30.4	31.3	31.6	31.8
32	33.1	26.0	28.7	27.6	28.6	27.9
48	22.1	26.0	23.5	25.2	24.8	24.7
64	49.6	21.8	21.5	21.9	22.1	22.0

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	41.6	50.9	53.8	52.1	50.6	50.2
16	41.6	37.0	39.9	39.8	39.6	39.4
32	41.6	37.0	39.4	39.4	39.2	39.3
48	34.6	37.0	37.5	38.7	38.5	38.6
64	51.7	35.4	36.3	36.9	37.4	37.4

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	19.6	16.6	22.1	16.5	12.6	8.9
16	5.6	7.4	8.8	7.6	7.7	6.7
32	5.6	5.5	5.5	5.5	5.3	5.0
48	4.2	3.7	4.0	4.1	4.2	3.9
64	14.0	3.7	3.2	3.4	3.5	3.3

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	24.2	28.8	30.7	21.4	19.1	14.0
16	9.7	12.8	12.8	12.2	12.2	10.8
32	7.3	9.6	9.6	8.6	8.7	8.1
48	4.8	6.4	7.0	7.1	6.8	6.4
64	24.2	4.8	5.5	5.7	5.5	5.4

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	50.1	44.1	52.6	45.5	42.9	39.1
16	33.4	33.0	40.5	38.2	38.9	36.5
32	33.4	26.6	32.9	32.0	31.8	31.3

48	16.7	14.7	16.5	15.6	16.3	15.7
64	16.7	16.5	13.9	14.8	14.6	14.5

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	41.0	40.6	38.0	39.4	37.4	37.6
16	34.1	35.3	35.9	35.2	36.9	36.7
32	29.3	32.4	30.7	32.8	32.9	32.0
48	25.6	28.0	30.2	30.6	31.7	31.7
64	41.0	28.0	28.1	28.8	29.6	29.8

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	5.6	4.0	3.5	3.5	3.4
16	2.8	3.7	2.8	3.0	3.0	3.0
32	2.8	3.7	2.5	2.2	2.5	2.3
48	2.8	2.2	2.2	2.0	2.2	2.0
64	2.8	1.9	1.8	1.8	1.8	1.8

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	4.8	9.6	5.9	5.9	5.9	5.7
16	4.8	6.4	5.9	5.0	5.3	4.8
32	4.8	4.8	4.2	4.1	4.1	4.0
48	4.8	3.8	3.6	3.4	3.5	3.4
64	4.8	3.8	3.2	3.1	2.9	3.0

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	33.4	26.5	22.9	21.5	21.7	21.9
16	16.7	22.1	21.1	21.1	19.8	20.3
32	16.7	16.5	18.2	17.9	17.5	17.9
48	11.1	18.9	16.5	15.6	16.3	16.1
64	33.4	18.9	13.9	14.6	15.2	14.8

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500

48	16.7	26.4	27.7	27.5	27.7	27.3
64	50.1	22.0	22.9	24.1	24.4	24.3

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	51.1	62.4	58.7	58.0	56.0	55.6
16	51.1	50.6	57.6	56.2	55.5	56.2
32	40.9	45.0	51.2	52.2	52.4	52.8
48	34.1	42.7	47.5	48.0	49.0	49.2
64	68.7	40.5	43.0	45.3	46.2	47.0

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	17.0	22.4	22.1	14.2	12.6	8.6
16	7.0	7.4	7.4	7.6	8.0	6.9
32	4.2	5.5	5.5	5.5	5.7	5.0
48	2.8	3.7	4.4	4.1	4.1	3.9
64	18.2	3.7	3.4	3.4	3.3	3.3

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	26.6	38.3	25.4	21.5	19.0	13.2
16	11.4	12.9	12.7	12.3	12.2	10.8
32	12.1	9.6	8.5	9.0	8.7	8.2
48	7.3	6.4	6.9	6.9	6.9	6.5
64	24.2	6.4	5.9	5.5	5.6	5.4

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	50.1	66.1	47.9	43.8	42.9	39.1
16	33.4	44.1	40.5	38.2	37.5	36.5
32	22.4	33.0	30.9	32.9	32.3	31.9
48	22.4	26.4	26.3	27.5	27.6	27.3
64	50.1	22.1	25.1	24.1	24.1	24.0

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500

NB						
1	41.0	36.9	37.1	38.6	38.1	37.6
16	34.1	36.9	35.5	36.6	35.8	36.2
32	34.1	31.2	32.0	32.1	33.1	33.2
48	22.8	27.0	29.9	31.0	32.0	31.2
64	34.1	26.2	28.3	29.1	29.5	30.0

*** Speed of ZGEQLF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	34.6	36.2	38.1	38.0	38.2	40.1
(16,	48)	69.3	32.0	35.0	34.9	35.7	36.2
(32,	128)	34.6	36.2	35.0	35.0	35.8	36.4
(48,	128)	34.6	38.8	32.4	33.8	34.0	35.3
(64,	128)	69.3		31.0	32.5	33.7	35.2

*** Speed of ZUNGQL in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	34.1	38.5	38.7	38.6	39.1	39.6
(16,	48)	34.1	33.7	34.6	35.3	35.9	36.7
(32,	128)	34.1	38.5	34.3	34.8	35.9	35.8
(48,	128)	22.7	35.9	32.8	33.6	33.7	35.8
(64,	128)	34.1	41.5	30.6	32.3	33.7	34.5

*** Speed of ZUNMQL in megaflops ***

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	32.3	36.2	64.3	50.2
16	2.1	8.1	8.1	6.6	7.1	6.9
32	.0	4.1	2.9	4.0	4.1	4.0
48	2.1	2.0	2.5	2.5	2.7	2.7
64	.0	2.0	2.2	2.1	2.1	2.1

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	4.1	.0	64.6	36.2	42.9	50.2
16	4.1	16.3	10.8	12.1	11.7	12.2
32	4.1	5.4	6.5	7.6	7.3	7.4

NB						
1	68.2	57.9	59.8	57.5	56.5	55.6
16	40.9	54.1	55.7	55.8	56.2	55.7
32	40.9	47.7	52.1	52.5	52.8	52.8
48	34.1	40.6	46.8	48.3	49.2	49.3
64	51.1	38.6	43.0	46.2	46.2	46.6

*** Speed of ZGEQLF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	46.1	49.5	52.5	52.9	52.8	53.1
(16,	48)	34.6	45.3	48.4	49.5	49.9	50.4
(32,	128)	46.5	49.5	47.3	48.6	49.1	49.6
(48,	128)	34.6	49.5	46.3	47.0	48.2	48.7
(64,	128)	34.6	54.4	43.1	45.9	46.9	48.0

*** Speed of ZUNGQL in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	45.4	49.0	53.0	52.9	52.8	52.9
(16,	48)	34.0	44.9	49.9	49.7	50.0	50.4
(32,	128)	34.0	53.9	47.7	48.7	49.2	49.6
(48,	128)	45.4	53.9	46.1	46.9	47.9	48.9
(64,	128)	45.4	53.9	42.9	45.7	46.6	47.7

*** Speed of ZUNMQL in megaflops ***

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	18.6	32.5	32.2	36.2	42.8	67.4
16	4.9	8.1	10.7	9.0	9.9	9.6
32	5.2	4.1	5.4	5.2	5.1	5.3
48	2.1	2.7	3.2	3.6	3.6	3.7
64	22.2	2.7	2.7	2.7	2.7	2.7

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	35.2	48.8	43.0	72.3	64.2	66.8
16	12.4	8.1	16.1	16.1	16.1	16.7
32	8.3	8.1	9.2	9.1	9.5	9.6

48	4.1	4.1	4.6	5.2	5.1	5.1
64	.0	4.1	3.8	3.9	4.0	4.0

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	33.1	43.4	36.9	38.6	39.6	37.3
16	16.6	26.0	25.8	29.0	29.4	29.7
32	16.6	21.7	21.5	23.6	23.1	24.7
48	16.6	18.6	19.9	19.6	20.2	20.7
64	.0	18.6	16.1	18.1	18.0	17.9

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	41.4	37.0	37.1	38.1	38.7	39.9
16	29.6	29.1	32.9	34.5	35.0	34.8
32	29.6	28.1	31.6	32.2	33.9	33.9
48	23.0	26.3	29.9	30.7	31.6	32.6
64	34.5	25.4	28.1	29.7	30.1	30.6

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	8.1	32.3	36.2	32.1	50.2
16	.0	4.1	6.5	8.0	7.1	6.9
32	2.1	2.7	4.0	3.8	4.1	4.1
48	1.0	2.7	2.5	2.9	2.6	2.7
64	.0	2.0	1.9	2.1	2.0	2.1

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	16.3	32.3	48.3	42.9	44.6
16	.0	8.1	10.8	12.1	11.7	12.2
32	.0	8.1	8.1	6.3	7.1	7.3
48	4.1	4.1	5.4	5.0	4.8	5.2
64	.0	3.3	3.8	3.9	4.0	4.0

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500

48	4.1	8.1	6.4	6.9	6.8	6.7
64	35.2	5.4	5.0	5.2	5.1	5.1

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	49.6	65.1	51.7	55.2	54.1	53.5
16	33.1	43.4	39.8	40.0	41.1	40.1
32	33.1	32.5	32.3	32.2	32.6	32.8
48	22.1	21.8	25.8	27.6	27.8	27.7
64	49.6	21.7	22.5	23.6	23.6	24.0

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.7	50.8	52.9	54.0	54.0	53.7
16	41.4	45.2	47.5	48.6	49.1	49.1
32	41.4	42.8	44.8	46.1	46.6	46.9
48	34.5	38.8	42.5	43.4	44.0	44.8
64	51.7	38.7	39.8	41.6	42.0	42.3

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.8	32.5	80.6	48.2	64.2	50.1
16	6.2	8.1	8.1	9.0	9.2	10.0
32	4.2	4.1	4.6	5.2	5.4	5.1
48	2.8	2.7	3.6	3.4	3.6	3.6
64	24.8	2.7	2.5	2.8	2.7	2.7

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	37.2	48.8	64.5	48.2	64.2	57.3
16	10.3	16.3	16.1	16.1	17.1	16.7
32	8.3	8.1	9.2	9.7	9.9	9.8
48	4.1	5.4	6.5	6.9	6.8	6.8
64	37.2	5.4	5.0	5.2	5.2	5.2

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500

NB						
1	33.1	32.6	39.7	36.2	39.6	39.2
16	33.1	26.0	28.7	29.7	29.8	29.2
32	16.6	18.6	23.5	23.6	24.5	24.5
48	16.6	18.6	19.1	19.0	20.0	21.1
64	33.1	16.3	17.8	18.1	17.7	18.1

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	41.4	35.4	37.1	38.5	39.2	39.0
16	29.6	31.3	32.9	34.5	35.8	35.6
32	29.6	29.1	31.3	31.8	33.0	34.2
48	18.8	28.1	30.2	30.7	31.7	33.1
64	34.5	25.4	27.4	29.3	30.1	31.0

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	11.1	8.8	9.0	9.3	8.6
16	2.8	5.6	5.5	5.2	6.3	5.9
32	2.8	3.7	3.7	4.0	4.1	3.9
48	2.8	2.8	2.9	3.1	3.0	3.0
64	.0	3.7	2.6	2.5	2.4	2.4

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	19.2	15.3	13.2	13.3	12.5
16	4.8	9.6	8.5	10.1	9.2	9.2
32	.0	6.4	6.9	6.6	6.0	6.6
48	2.4	4.8	4.8	5.0	5.0	5.0
64	.0	3.8	4.0	4.1	4.1	3.8

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	33.4	33.1	32.9	32.9	31.8	31.3
16	33.4	22.1	31.0	27.5	29.2	29.0
32	11.1	26.5	22.9	23.7	22.8	23.3
48	16.7	18.9	20.3	20.0	20.4	20.1
64	33.4	18.9	16.5	17.9	17.7	17.3

NB						
1	49.6	43.7	57.3	52.7	55.6	54.4
16	33.1	32.5	36.9	40.0	39.6	40.1
32	22.1	32.5	30.4	32.2	32.7	32.8
48	22.1	26.0	27.2	27.6	28.2	27.7
64	49.6	26.2	23.5	23.6	24.2	23.8

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.7	54.3	52.9	53.7	54.2	53.5
16	41.4	45.2	47.5	48.0	49.8	49.2
32	41.4	42.9	46.1	45.5	46.4	46.7
48	34.5	38.8	41.9	43.6	44.2	44.6
64	51.7	37.0	39.9	41.4	42.2	42.5

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	12.6	27.7	29.5	33.1	29.4	34.4
16	8.4	11.1	11.0	11.0	11.0	10.6
32	4.2	5.5	6.3	6.6	6.5	6.4
48	2.8	3.7	4.4	4.5	4.5	4.6
64	16.8	3.7	3.4	3.5	3.5	3.5

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	29.3	32.2	38.2	34.3	43.5	39.7
16	12.1	19.2	15.3	17.2	16.9	17.0
32	9.7	9.6	9.5	10.1	10.2	10.3
48	7.3	6.4	7.6	7.8	7.8	7.6
64	26.6	6.4	5.5	6.1	6.0	5.9

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	50.1	66.1	52.6	51.4	51.3	49.7
16	33.4	44.1	40.5	42.2	42.9	43.2
32	33.4	33.0	32.9	34.8	35.0	35.3
48	16.7	26.4	27.7	28.9	29.2	29.0
64	50.1	22.0	22.9	25.2	24.7	24.9

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	41.0	45.1	40.9	41.9	41.5	40.5
16	51.2	36.9	41.4	39.2	40.5	39.0
32	29.3	35.3	34.7	35.5	34.5	35.1
48	22.8	29.0	31.6	33.1	33.3	32.8
64	41.0	29.0	30.5	31.5	32.1	32.2

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	11.1	8.8	8.3	9.3	8.9
16	.0	3.7	6.3	5.8	5.9	5.9
32	2.8	3.7	4.0	4.1	4.0	3.9
48	.0	2.8	2.8	3.0	3.0	3.0
64	.0	2.8	2.5	2.4	2.5	2.4

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	19.2	12.7	14.3	13.3	12.2
16	4.8	9.6	9.5	9.5	9.2	9.7
32	4.8	4.8	5.9	6.6	5.9	6.3
48	4.8	3.8	5.5	4.8	5.1	4.8
64	4.8	3.8	4.0	4.1	3.9	3.9

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	33.4	33.1	32.9	32.9	31.4	31.3
16	33.4	33.1	26.3	28.9	28.8	28.3
32	33.4	22.1	23.9	23.7	22.1	24.1
48	16.7	18.9	20.3	20.0	20.4	20.4
64	33.4	16.5	17.0	16.9	18.0	17.6

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	41.0	40.6	42.5	41.4	41.5	40.7
16	34.1	38.6	39.9	40.3	40.9	39.4
32	29.3	33.8	34.7	35.4	36.1	35.2

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	68.2	62.3	59.8	60.4	60.2	59.3
16	51.1	54.0	58.7	58.0	57.8	57.6
32	51.5	47.7	51.2	53.3	53.9	54.4
48	34.2	40.5	46.1	48.7	49.9	50.0
64	68.2	40.6	43.0	46.2	46.5	47.3

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	21.0	27.7	29.5	33.1	29.5	34.4
16	7.0	5.5	11.1	11.0	10.4	11.0
32	5.6	5.5	6.3	6.2	6.8	6.4
48	2.8	3.7	4.4	4.7	4.8	4.6
64	30.8	3.7	3.4	3.5	3.5	3.5

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	26.6	38.3	38.2	42.9	38.1	39.6
16	12.1	12.8	19.1	17.1	16.0	16.4
32	9.7	9.6	10.9	10.7	10.5	10.3
48	4.8	9.6	7.0	7.5	7.4	7.7
64	29.0	6.4	5.9	5.9	6.0	5.9

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	50.1	66.1	52.7	51.4	51.3	51.3
16	33.6	44.1	40.5	42.2	42.0	43.2
32	22.2	26.4	32.9	33.8	34.5	34.5
48	22.2	26.6	29.3	28.9	28.8	28.8
64	50.1	26.4	23.9	24.6	25.0	24.9

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.1	62.4	60.9	59.9	60.2	59.2
16	51.1	54.1	56.6	57.1	57.5	57.8
32	51.1	47.7	51.2	52.9	53.7	54.4

48	25.6	29.0	32.3	33.1	33.4	33.2
64	41.0	29.0	30.5	30.7	32.7	32.3

*** Speed of ZGERQF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	23.1	32.0	39.2	41.1	40.3	41.1
(16,	48)	34.7	34.0	35.0	36.6	35.7	37.9
(32,	128)	23.1	34.0	33.4	35.0	35.5	36.9
(48,	128)	69.3	34.0	31.7	32.6	34.9	35.9
(64,	128)	34.7	30.2	30.1	32.6	34.4	35.0

*** Speed of ZUNGRQ in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	68.2	36.0	38.3	40.0	40.4	40.0
(16,	48)	34.1	30.0	35.8	37.0	36.0	37.1
(32,	128)	34.1	41.5	33.3	34.7	36.3	36.6
(48,	128)	34.1	41.5	32.5	33.1	35.0	35.9
(64,	128)	34.1	41.5	30.6	32.0	34.3	35.8

*** Speed of ZUNMRQ in megaflops ***

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 1

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500
NB							
1		2.1	4.1	4.6	4.5	4.1	3.9
16		.0	2.7	2.7	3.0	2.9	3.0
32		2.1	2.0	2.5	2.3	2.1	2.2
48		2.1	1.6	2.0	1.9	1.9	1.8
64		2.1	2.0	1.6	1.6	1.5	1.5

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 2

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500
NB							
1		.0	8.1	6.5	5.8	6.0	5.5
16		.0	5.4	5.0	4.8	4.6	4.8
32		.0	5.4	4.0	4.1	3.8	3.8
48		4.1	4.1	3.4	3.1	3.3	3.2
64		.0	3.3	2.9	2.9	2.8	2.7

48	34.1	42.7	46.8	49.0	49.9	50.0
64	51.5	40.6	43.6	45.6	47.4	47.0

*** Speed of ZGERQF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	34.6	54.3	57.4	60.1	59.5	60.2
(16,	48)	34.6	49.4	54.5	56.4	57.2	57.7
(32,	128)	46.2	54.3	52.5	54.3	55.4	56.3
(48,	128)	46.5	54.3	50.1	52.7	54.1	55.4
(64,	128)	34.6	54.3	46.8	50.8	52.6	54.0

*** Speed of ZUNGRQ in megaflops ***

K = min(M,N)

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	45.8	60.0	58.8	59.7	59.2	59.3
(16,	48)	34.0	54.0	55.7	56.9	57.4	57.8
(32,	128)	68.1	60.0	53.0	54.3	55.5	56.5
(48,	128)	45.4	53.9	50.5	52.6	53.9	55.1
(64,	128)	68.1	53.9	47.2	50.9	52.3	54.1

*** Speed of ZUNMRQ in megaflops ***

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 1

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500
NB							
1		12.4	20.3	32.2	36.4	32.1	33.4
16		4.1	8.1	8.1	8.0	8.0	8.0
32		3.1	4.1	5.4	5.2	5.1	5.1
48		2.1	8.1	3.6	3.8	3.9	3.9
64		13.4	4.1	2.9	3.0	3.0	3.0

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 2

	K	50	100	200	300	400	500
	M	50	100	200	300	400	500
NB							
1		32.0	32.5	32.2	48.2	43.0	44.7
16		10.3	8.1	12.9	13.2	13.5	13.9
32		8.3	10.8	9.2	9.1	9.5	9.3
48		4.1	5.5	7.2	6.9	7.1	7.0
64		31.0	5.4	5.4	5.6	5.6	5.5

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	16.6	11.8	8.3	8.0	7.8	7.4
16	16.6	18.6	11.7	10.9	10.3	10.2
32	16.6	14.5	11.0	10.4	10.1	9.8
48	16.6	14.5	10.5	10.2	9.8	9.5
64	33.1	16.3	10.1	9.8	9.4	8.9

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	14.8	11.2	8.6	8.4	8.1	7.9
16	18.8	17.3	13.1	12.6	12.1	11.9
32	18.8	18.1	14.0	13.0	12.0	12.3
48	25.9	19.4	13.9	13.1	12.8	12.4
64	17.3	19.9	14.6	13.6	13.0	12.5

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	8.1	4.0	4.0	4.0	3.8
16	2.1	2.7	2.9	2.9	2.9	3.0
32	2.1	2.7	2.5	2.3	2.2	2.2
48	1.0	1.6	1.8	1.9	1.8	1.8
64	.0	1.6	1.5	1.6	1.6	1.5

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	4.1	5.4	5.9	5.4	5.4	5.1
16	4.1	5.4	5.0	4.8	4.8	4.5
32	4.1	4.1	4.0	4.0	3.8	3.9
48	2.1	3.3	3.2	3.2	3.2	3.2
64	4.1	3.3	2.7	2.8	2.9	2.7

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	33.1	11.8	8.3	7.8	7.7	7.4
16	16.6	13.0	11.5	10.6	10.2	10.4
32	16.6	13.0	11.0	10.3	10.2	9.9

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	82.7	65.1	51.6	52.7	50.2	48.7
16	33.4	32.5	34.5	33.1	32.7	32.8
32	25.0	26.0	28.7	29.7	29.4	28.9
48	22.2	21.7	27.2	25.8	26.4	25.9
64	44.5	26.2	23.5	23.6	23.4	23.1

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	51.7	50.9	52.9	51.4	51.0	50.0
16	34.5	40.7	39.8	40.0	39.7	39.4
32	34.5	38.7	39.4	39.8	39.8	39.4
48	34.5	35.4	38.4	38.7	38.7	38.7
64	68.9	35.4	37.5	38.1	37.8	37.9

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	20.7	28.5	32.2	36.2	32.1	33.4
16	6.2	12.2	8.1	8.1	8.0	8.0
32	4.1	4.1	4.6	5.2	5.1	5.1
48	3.1	4.1	3.6	3.8	3.8	3.7
64	21.7	4.1	2.9	3.0	3.0	2.9

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	29.0	40.7	129.0	48.2	42.8	44.6
16	10.3	16.3	12.9	13.2	14.3	13.8
32	8.3	8.1	9.2	9.0	9.5	9.3
48	6.2	8.1	6.5	6.9	7.6	7.2
64	29.0	5.4	5.0	5.6	5.6	5.7

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	33.1	43.4	51.7	52.7	50.2	49.4
16	33.1	32.5	32.3	33.1	32.6	32.4
32	33.1	26.2	28.7	29.7	29.4	29.2

48	16.6	14.5	10.3	10.0	9.7	9.4
64	16.6	13.0	10.3	10.0	9.6	9.0

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	17.3	12.0	8.7	8.3	8.0	8.0
16	18.8	16.6	13.0	12.6	12.0	12.0
32	23.0	18.5	13.9	13.1	12.2	12.3
48	20.7	18.9	13.8	13.5	12.8	12.2
64	15.9	21.4	14.6	13.6	12.8	12.6

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	2.8	3.7	3.4	3.5	3.4
16	2.8	3.7	2.9	3.3	3.3	3.1
32	2.8	2.8	2.6	2.5	2.5	2.6
48	2.8	2.8	2.0	2.3	2.2	2.2
64	.0	2.2	1.9	2.0	1.8	1.9

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	6.4	5.9	6.1	5.6	5.7
16	.0	6.4	5.5	5.0	5.3	5.2
32	4.8	4.8	4.0	4.4	4.2	4.4
48	4.8	4.8	4.0	3.8	3.7	3.7
64	.0	3.8	3.2	3.2	3.1	3.1

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	26.5	22.9	22.3	21.9	22.2
16	16.7	26.5	21.9	20.8	21.7	20.6
32	16.7	22.1	19.5	18.5	18.6	18.9
48	16.7	16.5	16.0	16.2	16.0	16.7
64	33.4	16.5	14.2	15.6	15.2	14.8

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500

48	16.5	26.0	25.8	25.8	26.0	25.9
64	49.6	21.7	22.5	23.6	23.1	23.1

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	51.7	50.9	52.9	52.1	50.8	50.4
16	41.4	38.8	39.4	39.6	39.7	39.4
32	41.4	38.8	38.9	39.6	39.8	39.4
48	34.5	37.0	38.0	38.5	38.6	38.7
64	51.7	37.0	36.7	38.1	37.9	37.7

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	11.2	16.6	29.5	16.5	11.0	9.2
16	5.6	11.1	11.0	8.3	8.4	7.7
32	4.7	5.5	6.3	6.2	5.9	5.5
48	2.8	5.5	4.9	4.7	4.5	4.6
64	17.0	3.7	3.7	3.8	3.7	3.5

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	24.2	28.8	38.2	24.5	17.9	14.9
16	12.1	38.3	15.3	14.3	13.3	12.2
32	9.7	9.6	10.9	10.1	9.5	9.2
48	7.3	6.4	7.6	7.8	7.4	7.3
64	24.2	19.2	6.4	6.4	6.0	6.0

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	50.1	44.1	52.7	45.5	42.9	40.0
16	33.4	44.1	40.5	39.4	38.9	38.2
32	33.4	33.2	35.1	33.8	33.9	33.1
48	22.2	26.4	29.3	28.8	29.2	28.8
64	50.1	22.0	25.1	25.7	25.6	25.2

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500

NB						
1	41.0	40.6	36.3	37.0	37.9	36.7
16	34.1	35.3	35.1	36.6	37.4	36.4
32	34.1	31.2	32.0	33.4	33.4	34.1
48	25.6	29.0	29.3	31.7	32.6	32.2
64	34.1	27.0	28.1	30.3	30.8	30.1

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	2.8	5.6	3.7	3.7	3.6	3.7
16	2.8	2.8	3.2	3.1	3.2	3.1
32	2.8	3.7	2.8	2.8	2.6	2.6
48	1.4	2.8	2.2	2.3	2.3	2.2
64	2.8	2.2	1.8	2.0	1.9	1.8

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	4.8	9.6	5.9	5.7	6.2	6.2
16	4.8	9.6	5.9	5.4	5.2	5.2
32	4.8	4.8	4.2	4.6	4.3	4.3
48	4.8	3.8	3.6	3.9	3.6	3.8
64	2.4	3.8	3.5	3.3	3.1	3.1

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	33.4	26.5	21.1	23.2	22.4	22.0
16	.0	22.1	19.5	20.0	21.4	20.9
32	33.4	18.9	18.2	19.1	18.8	19.3
48	16.7	16.5	16.5	16.9	16.9	16.9
64	33.4	18.9	15.0	15.8	15.3	14.8

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	34.1	38.6	36.7	37.6	37.4	37.2
16	34.1	38.6	35.9	36.6	35.9	37.1
32	29.3	32.4	31.3	33.4	33.2	34.1
48	25.6	28.0	29.9	31.7	32.0	32.0
64	41.0	29.0	28.6	29.5	30.4	30.6

NB						
1	51.5	62.4	59.8	58.0	57.5	55.9
16	51.1	54.1	55.7	56.6	57.5	57.0
32	40.9	47.7	51.2	52.9	53.2	53.5
48	34.1	40.6	48.2	49.3	49.7	50.0
64	68.2	42.7	43.6	46.8	46.8	47.3

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	18.2	22.2	22.1	16.6	11.8	9.2
16	7.0	11.1	11.0	9.0	8.0	7.7
32	5.6	5.5	6.3	6.2	5.9	5.5
48	3.8	5.5	4.9	4.7	4.5	4.4
64	25.2	3.7	3.7	3.8	3.7	3.5

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	26.6	38.3	25.4	24.5	16.9	14.0
16	12.1	14.5	15.3	13.2	12.7	12.2
32	7.3	9.6	9.5	9.5	9.2	9.0
48	4.8	7.7	7.6	7.8	7.4	7.1
64	26.6	9.6	6.4	6.4	6.1	5.9

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	50.1	66.1	47.8	45.5	42.9	40.0
16	33.4	33.0	40.5	40.8	38.9	38.2
32	33.4	33.0	35.1	33.8	33.4	33.1
48	22.2	26.4	29.2	29.6	29.2	29.0
64	50.1	26.4	25.1	26.3	25.9	25.6

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	68.2	57.9	59.8	58.5	56.7	56.0
16	51.1	54.0	56.6	56.6	56.2	56.5
32	40.9	47.7	51.2	53.3	53.4	53.6
48	34.1	42.7	47.5	49.0	49.7	50.0
64	68.2	40.6	44.2	46.5	47.0	47.3

*** Speed of ZGEQPF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
Type							
2		37.3	31.4	33.8	36.1	37.3	37.8
3		37.3	29.7	32.5	35.8	37.1	37.2

*** Speed of ZGEHRD in megaflops ***

ILO = 1, IHI = N

	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	33.4	39.2	40.0	40.2	40.9	41.2
(16,	48)	33.4	35.1	37.6	38.1	37.9	39.2
(32,	128)	33.4	39.2	36.3	37.0	37.9	36.7
(48,	128)	41.7	38.1	34.3	36.3	37.2	36.8
(64,	128)	41.7	40.4	33.2	35.1	36.2	36.0

*** Speed of ZUNGHR in megaflops ***

ILO = 1, IHI = N

	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	32.1	37.4	37.4	37.8	38.9	39.9
(16,	48)	32.1	32.7	35.8	36.2	35.5	36.6
(32,	128)	32.1	37.4	34.9	35.0	35.5	34.0
(48,	128)	32.1	40.3	32.3	33.4	34.5	34.7
(64,	128)	32.1	32.7	30.4	32.9	34.2	34.5

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
NB						
1	.0	.0	.0	36.0	25.6	40.0
16	1.0	2.7	6.4	7.2	7.5	7.7
32	2.0	2.7	3.6	3.4	3.8	3.9
48	.0	2.0	2.0	2.5	2.6	2.6
64	.0	1.6	1.7	2.0	2.0	2.0

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
NB						
1	.0	16.0	32.0	48.0	51.2	50.0
16	4.0	8.0	10.7	12.0	11.6	12.1
32	4.0	5.3	7.1	6.0	6.7	7.0
48	2.0	3.2	4.3	4.6	4.8	4.9
64	4.0	3.2	3.6	3.8	4.0	3.7

*** Speed of ZGEQPF in megaflops ***

	M	50	100	200	300	400	500
	N	50	100	200	300	400	500
Type							
2		37.2	43.5	47.8	49.6	50.3	50.8
3		37.2	43.4	47.8	49.5	50.0	50.7

*** Speed of ZGEHRD in megaflops ***

ILO = 1, IHI = N

	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	56.0	55.5	57.4	57.2	58.0	57.5
(16,	48)	42.2	49.4	53.6	53.9	54.4	54.7
(32,	128)	56.0	55.5	52.1	53.1	53.6	54.2
(48,	128)	56.0	55.5	52.0	52.0	52.7	53.4
(64,	128)	41.7	55.5	47.9	51.1	51.4	52.6

*** Speed of ZUNGHR in megaflops ***

ILO = 1, IHI = N

	N	50	100	200	300	400	500
(NB,	NX)						
(1,	0)	42.4	52.3	52.8	52.4	51.6	52.5
(16,	48)	42.4	47.6	49.2	49.3	49.9	50.3
(32,	128)	32.0	58.2	47.0	48.3	48.8	49.6
(48,	128)	42.4	52.3	45.4	46.8	47.8	48.5
(64,	128)	64.1	52.3	43.1	45.6	46.5	47.6

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 1

M	50	100	200	300	400	500
NB						
1	24.8	27.9	47.9	48.3	63.9	49.9
16	6.0	8.0	10.7	9.0	9.1	10.0
32	4.0	4.0	4.5	4.8	4.9	5.1
48	3.0	2.7	3.2	3.4	3.4	3.5
64	20.0	2.0	2.5	2.5	2.6	2.6

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 2

M	50	100	200	300	400	500
NB						
1	35.8	47.8	64.4	71.9	63.9	66.6
16	11.9	15.9	16.0	16.0	16.0	16.7
32	6.0	8.0	10.6	9.0	9.1	9.5
48	4.0	5.3	6.4	6.3	6.4	6.4
64	33.8	4.0	4.6	4.8	4.9	5.0

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	31.8	31.9	39.3	38.4	38.6	37.6
16	15.9	31.9	26.9	28.8	29.2	29.1
32	15.9	25.5	24.4	23.0	24.4	22.5
48	15.9	16.0	18.9	20.2	20.1	20.6
64	31.8	16.0	17.0	16.7	17.8	17.7

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 100

NB \ M	50	100	200	300	400	500
1	28.4	34.7	38.0	38.1	37.5	39.7
16	22.1	31.9	33.3	35.4	34.8	35.4
32	22.1	27.5	31.6	32.6	33.3	31.2
48	22.1	24.9	27.8	31.4	31.6	31.8
64	39.8	27.5	27.1	29.7	30.4	30.4

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	32.0	36.0	42.6	40.0
16	.0	8.0	8.0	6.5	6.7	6.9
32	.0	4.0	3.2	3.8	3.9	4.0
48	2.0	2.7	2.3	2.6	2.6	2.7
64	.0	1.3	1.9	1.9	2.1	2.0

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 2

NB \ M	50	100	200	300	400	500
1	.0	.0	32.0	36.0	42.6	44.4
16	.0	16.0	12.8	11.1	11.6	12.5
32	4.0	5.3	5.8	7.6	6.9	6.7
48	4.0	4.0	4.6	4.8	5.0	4.9
64	.0	4.0	3.4	3.7	3.7	3.8

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 16

NB \ M	50	100	200	300	400	500
1	.0	31.9	39.3	38.4	40.1	39.5
16	31.8	31.9	28.4	28.8	30.1	29.6
32	31.8	21.3	21.3	24.0	24.1	22.1
48	15.9	18.2	20.5	20.6	20.1	20.0
64	31.8	18.2	16.0	17.2	17.2	17.5

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	47.7	63.8	51.1	52.4	53.9	55.1
16	31.8	31.9	36.5	39.7	39.4	41.0
32	31.8	31.9	30.0	31.1	32.0	32.3
48	15.9	21.3	25.6	26.8	27.3	27.1
64	47.7	18.3	21.3	22.6	23.0	23.4

ZUNMHR with SIDE = 'L', TRANS = 'N', N = 100

NB \ M	50	100	200	300	400	500
1	49.7	53.2	53.3	53.3	53.3	53.6
16	39.9	44.4	49.2	49.3	48.6	49.1
32	39.6	42.0	44.4	45.8	46.2	46.6
48	33.1	38.0	41.5	43.3	43.7	44.3
64	49.7	36.3	39.0	41.1	41.5	42.2

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 1

NB \ M	50	100	200	300	400	500
1	24.8	37.5	31.9	71.9	63.9	50.5
16	6.0	8.0	8.0	9.0	10.7	10.0
32	4.0	4.0	4.6	4.8	5.3	5.0
48	2.0	2.7	3.2	3.4	3.4	3.4
64	25.4	2.7	2.7	2.6	2.6	2.6

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 2

NB \ M	50	100	200	300	400	500
1	35.8	39.9	63.9	71.9	63.9	56.9
16	9.9	15.9	16.0	16.0	16.0	16.0
32	7.9	8.0	9.2	9.0	9.1	9.3
48	6.0	5.4	5.8	6.3	6.4	6.6
64	35.8	5.3	4.9	4.8	5.0	4.9

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 16

NB \ M	50	100	200	300	400	500
1	47.7	42.9	51.1	54.8	52.5	54.2
16	31.8	42.2	39.4	38.3	40.2	40.0
32	15.9	25.6	30.1	32.0	32.0	32.3
48	21.4	25.4	25.5	26.8	26.6	27.3
64	47.7	21.3	21.3	23.0	23.0	23.3

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 100

M / NB	50	100	200	300	400	500
1	33.2	36.3	38.0	38.3	38.2	39.7
16	24.9	29.6	33.6	35.4	34.5	35.8
32	24.9	29.6	32.0	32.8	33.3	32.1
48	24.9	24.9	28.8	31.0	31.4	31.8
64	33.2	25.7	27.6	29.4	30.3	30.5

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	.0	10.9	10.9	8.2	8.0	8.6
16	2.7	10.9	5.5	5.5	5.7	5.7
32	2.7	3.6	4.0	3.9	3.8	3.1
48	2.7	2.7	2.9	3.0	2.9	2.9
64	.0	2.2	2.0	2.3	2.3	2.4

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 2

N / NB	50	100	200	300	400	500
1	.0	18.8	15.1	12.2	13.2	12.8
16	4.7	9.4	10.8	10.0	8.7	8.9
32	4.7	6.3	6.9	6.1	6.6	6.5
48	4.7	4.7	4.7	4.6	5.0	4.8
64	.0	3.8	3.8	3.7	3.9	3.9

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 16

N / NB	50	100	200	300	400	500
1	32.1	43.2	32.6	31.8	31.7	32.7
16	16.0	25.9	26.1	30.1	29.0	28.9
32	32.1	25.9	22.7	23.5	23.5	22.5
48	10.7	14.4	19.3	19.6	19.7	20.2
64	32.1	16.2	16.8	17.3	17.9	17.3

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 100

N / NB	50	100	200	300	400	500
1	39.3	41.8	42.6	40.5	39.8	40.8
16	32.8	37.9	39.0	39.4	39.7	40.4
32	32.8	31.8	33.6	35.3	35.5	34.2
48	24.6	30.6	31.6	33.5	33.2	33.6
64	39.3	28.4	29.3	30.8	31.8	32.3

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 1

ZUNMHR with SIDE = 'L', TRANS = 'C', N = 100

M / NB	50	100	200	300	400	500
1	50.3	49.8	54.2	53.7	53.3	53.4
16	39.9	44.3	47.0	48.3	48.5	49.1
32	39.9	39.9	45.0	45.2	46.5	46.8
48	33.1	39.9	42.0	43.3	43.5	44.1
64	49.7	36.2	39.0	40.9	41.5	42.2

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	17.5	27.2	21.9	32.6	29.5	30.5
16	8.1	7.3	10.9	9.9	11.0	11.0
32	4.0	5.4	6.3	6.2	6.3	6.4
48	2.7	3.7	4.4	4.3	4.4	4.4
64	17.5	3.7	3.1	3.4	3.4	3.4

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 2

N / NB	50	100	200	300	400	500
1	27.9	37.6	75.5	42.6	43.1	39.5
16	14.0	12.4	15.2	15.5	16.8	16.3
32	9.3	9.4	9.5	10.0	9.8	10.1
48	7.0	6.3	7.6	6.8	7.1	7.4
64	27.9	6.2	5.4	5.5	5.6	5.6

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 16

N / NB	50	100	200	300	400	500
1	48.1	64.8	47.5	51.1	51.0	51.9
16	47.0	32.4	40.1	42.0	43.6	43.0
32	32.1	32.4	32.6	33.6	33.7	34.0
48	16.0	21.8	27.4	28.0	28.3	28.4
64	48.1	21.8	22.7	23.5	24.3	24.4

ZUNMHR with SIDE = 'R', TRANS = 'N', M = 100

N / NB	50	100	200	300	400	500
1	65.0	61.0	60.3	60.0	59.1	58.9
16	49.1	61.2	57.1	57.2	57.5	57.9
32	49.1	46.8	50.7	53.4	53.4	54.0
48	32.8	41.9	46.3	48.3	49.1	49.8
64	66.1	37.9	43.2	45.0	45.9	47.2

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 1

NB \ N	50	100	200	300	400	500
1	2.7	5.4	8.8	9.0	8.0	8.9
16	.0	.0	5.5	5.5	6.1	6.0
32	2.7	3.6	4.0	3.8	3.9	3.6
48	1.3	2.7	2.7	2.9	2.9	2.9
64	.0	2.2	2.4	2.3	2.4	2.3

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 2

NB \ N	50	100	200	300	400	500
1	.0	18.8	15.1	13.1	12.6	12.2
16	.0	6.3	9.5	8.1	8.9	9.3
32	4.7	6.3	7.6	6.3	6.3	5.4
48	4.7	4.7	5.0	4.9	4.7	4.9
64	.0	4.7	3.6	3.7	3.9	4.0

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 16

NB \ N	50	100	200	300	400	500
1	32.1	32.4	29.0	30.9	31.2	32.4
16	32.1	32.4	27.4	28.0	28.3	28.2
32	16.0	21.6	23.7	22.6	23.0	21.4
48	16.0	18.5	18.6	19.9	19.5	19.7
64	32.1	16.2	16.8	17.3	17.0	17.8

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 100

NB \ N	50	100	200	300	400	500
1	39.3	39.7	43.2	41.4	40.3	41.2
16	39.3	37.9	39.5	39.4	39.7	40.4
32	28.1	31.8	35.1	34.8	35.4	35.3
48	21.9	28.4	31.6	33.7	32.9	33.3
64	39.3	28.4	29.9	30.4	32.1	31.9

*** Speed of ZHETRD in megaflops ***

ZHETRD with UPLO = 'U'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	70.9	50.0	49.8	51.6	52.1	53.3
(16, 48)	23.6	36.7	41.3	44.1	45.4	45.3
(32, 128)	70.9	45.9	40.5	40.9	42.5	43.5
(48, 128)	35.4	45.9	35.8	37.9	39.6	40.2
(64, 128)	35.4	55.0	31.0	33.3	36.5	38.9

NB \ N	50	100	200	300	400	500
1	20.2	27.2	28.9	33.1	29.2	30.5
16	6.7	10.9	10.9	10.9	10.3	10.5
32	4.0	5.4	6.2	6.2	6.3	6.2
48	2.7	3.6	4.4	4.5	4.5	4.4
64	20.2	2.7	3.1	3.3	3.3	3.4

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 2

NB \ N	50	100	200	300	400	500
1	27.9	28.2	50.0	42.6	43.4	43.0
16	9.3	18.8	15.0	17.0	16.0	16.9
32	7.0	9.4	9.4	9.5	10.1	10.1
48	4.7	6.2	6.9	7.1	7.2	7.3
64	28.1	4.7	5.4	5.7	5.5	5.6

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 16

NB \ N	50	100	200	300	400	500
1	48.1	43.5	52.1	51.1	49.8	51.1
16	32.1	43.5	43.4	42.0	42.6	43.0
32	21.6	26.0	32.6	33.6	33.7	34.4
48	21.6	18.4	26.1	28.0	27.9	28.4
64	48.1	21.6	22.6	24.0	24.3	24.6

ZUNMHR with SIDE = 'R', TRANS = 'C', M = 100

NB \ N	50	100	200	300	400	500
1	66.1	61.2	60.3	60.0	58.8	59.1
16	49.1	53.0	56.1	56.3	57.7	57.9
32	39.5	46.8	52.4	54.2	53.2	53.9
48	32.8	39.8	45.6	48.0	49.1	49.7
64	65.0	39.7	42.6	45.0	45.9	47.0

*** Speed of ZHETRD in megaflops ***

ZHETRD with UPLO = 'U'

(NB, NX) \ N	50	100	200	300	400	500
(1, 0)	70.8	68.7	80.3	82.2	83.5	83.4
(16, 48)	35.4	55.0	64.7	68.0	69.4	69.2
(32, 128)	70.8	68.7	58.6	61.7	63.5	65.0
(48, 128)	70.8	69.1	53.5	56.6	58.9	61.0
(64, 128)	70.8	68.7	45.6	51.8	54.8	57.7

ZHETRD with UPLO = 'L'

(NB, NX)	N = 50	100	200	300	400	500
(1, 0)	23.6	50.0	51.6	52.7	54.2	55.0
(16, 48)	35.4	36.7	42.1	43.3	45.3	45.8
(32, 128)	70.9	45.9	39.0	40.9	40.8	43.0
(48, 128)	35.4	50.0	35.2	37.6	39.3	40.6
(64, 128)	35.4	50.0	31.0	35.2	37.0	39.1

*** Speed of ZUNGTR in megaflops ***

ZUNGTR with UPLO = 'U'

(NB, NX)	N = 50	100	200	300	400	500
(1, 0)	64.1	37.4	37.4	38.7	38.1	39.0
(16, 48)	64.1	34.9	33.8	35.2	35.9	36.0
(32, 128)	32.1	37.4	33.8	34.9	35.2	36.1
(48, 128)	64.1	40.3	32.5	32.4	34.7	34.8
(64, 128)	32.1	30.8	30.6	32.3	33.8	34.3

ZUNGTR with UPLO = 'L'

(NB, NX)	N = 50	100	200	300	400	500
(1, 0)	32.1	37.4	39.1	38.0	38.6	40.4
(16, 48)	21.4	30.8	34.9	34.9	35.7	35.7
(32, 128)	32.1	34.9	33.3	35.1	33.8	35.9
(48, 128)	32.1	37.4	32.8	33.3	34.1	35.6
(64, 128)	64.1	34.9	31.3	32.5	33.7	35.0

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	2.0	.0	32.0	24.0	42.6	40.0
16	2.0	8.0	8.0	7.2	7.1	7.1
32	.0	4.0	4.0	4.0	3.8	4.0
48	2.0	2.7	2.5	2.8	2.6	2.7
64	.0	2.7	1.9	2.2	2.1	2.0

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	32.0	24.0	42.6	50.0
16	.0	4.0	8.0	6.0	6.1	6.9
32	2.0	2.7	3.6	3.3	3.7	3.8
48	2.0	2.0	2.3	2.8	2.5	2.7
64	2.0	1.6	2.0	1.8	2.0	2.1

ZHETRD with UPLO = 'L'

(NB, NX)	N = 50	100	200	300	400	500
(1, 0)	47.6	69.1	73.4	74.6	75.4	75.6
(16, 48)	35.4	55.0	66.7	71.0	72.0	72.1
(32, 128)	70.8	78.8	60.2	63.0	65.7	67.1
(48, 128)	138.2	69.1	53.5	57.3	60.9	62.9
(64, 128)	35.4	68.7	47.1	52.7	55.9	59.4

*** Speed of ZUNGTR in megaflops ***

ZUNGTR with UPLO = 'U'

(NB, NX)	N = 50	100	200	300	400	500
(1, 0)	42.4	52.3	52.2	53.2	52.8	52.7
(16, 48)	64.1	43.6	49.2	49.3	50.0	50.5
(32, 128)	32.0	52.3	47.5	48.3	48.9	49.7
(48, 128)	64.1	57.9	45.4	46.8	47.9	48.6
(64, 128)	43.1	52.3	42.7	45.6	46.5	47.6

ZUNGTR with UPLO = 'L'

(NB, NX)	N = 50	100	200	300	400	500
(1, 0)	64.1	52.3	52.8	52.8	52.2	52.6
(16, 48)	43.1	47.6	48.0	49.3	50.0	50.3
(32, 128)	32.0	52.5	47.5	48.0	49.5	49.5
(48, 128)	64.1	57.9	45.5	46.9	47.7	48.5
(64, 128)	64.1	52.3	42.7	45.6	45.9	47.6

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	26.7	31.9	47.9	71.9	42.3	67.1
16	6.0	8.0	8.0	9.0	9.2	9.5
32	5.0	4.0	4.5	5.5	5.1	5.1
48	3.0	2.7	3.2	3.6	3.5	3.6
64	25.8	2.7	2.5	2.8	2.7	2.7

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 1

NB \ M	50	100	200	300	400	500
1	15.9	19.9	47.9	71.9	63.9	67.1
16	5.0	8.0	8.1	9.0	9.1	9.5
32	4.0	4.0	4.6	5.1	5.1	5.0
48	2.0	2.7	3.2	3.1	3.4	3.5
64	21.4	2.7	2.5	2.6	2.5	2.6

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 2

NB \ M	50	100	200	300	400	500
1	.0	.0	32.0	36.0	42.6	44.4
16	4.0	16.0	10.7	11.1	11.6	11.4
32	4.0	5.3	7.1	6.9	7.1	7.1
48	2.0	4.0	5.3	4.8	5.0	5.1
64	.0	4.0	3.6	4.1	3.9	4.0

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 2

NB \ M	50	100	200	300	400	500
1	.0	.0	63.9	48.0	36.5	44.4
16	.0	8.0	9.1	12.0	11.6	10.8
32	.0	5.3	6.4	6.5	6.9	7.3
48	4.0	4.0	4.6	4.8	4.8	5.1
64	.0	2.7	3.4	3.6	3.8	3.9

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	15.9	42.6	39.3	37.1	39.4	39.0
16	15.9	25.5	30.1	28.8	29.2	29.3
32	31.8	21.3	23.2	24.0	23.8	24.4
48	15.9	21.3	18.9	19.5	20.3	20.8
64	31.8	18.2	17.0	18.6	17.8	18.3

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	31.8	42.6	39.3	36.0	38.6	40.0
16	31.8	21.3	30.1	29.5	28.0	29.3
32	15.9	21.3	23.2	25.0	23.8	24.8
48	10.6	18.2	18.9	20.2	20.3	20.2
64	31.8	16.0	15.5	16.0	17.6	17.8

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 100

NB \ M	50	100	200	300	400	500
1	33.2	36.3	36.7	37.3	39.0	39.4
16	28.4	31.9	33.3	33.9	34.4	34.0
32	39.8	28.5	32.6	33.0	31.9	33.9
48	22.1	25.7	31.3	30.7	31.9	32.0
64	33.2	24.9	28.3	29.7	29.7	30.8

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 2

NB \ M	50	100	200	300	400	500
1	35.8	47.8	63.9	47.5	63.9	66.6
16	10.7	15.9	16.0	16.0	16.0	16.6
32	7.9	8.0	9.2	9.6	9.5	9.5
48	4.0	5.3	6.4	6.5	6.7	6.8
64	33.8	5.4	4.9	5.1	5.2	5.1

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 2

NB \ M	50	100	200	300	400	500
1	33.8	47.8	63.9	71.9	63.9	56.9
16	11.9	8.0	12.8	16.0	17.1	17.3
32	6.0	8.0	9.2	9.0	9.1	9.3
48	6.0	5.3	6.4	6.3	6.4	6.6
64	35.8	5.4	4.9	4.8	4.9	5.0

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	47.7	51.3	51.1	52.4	53.9	54.2
16	31.8	31.9	36.6	39.7	40.1	40.5
32	31.8	31.9	30.1	31.9	32.5	33.0
48	15.9	25.6	26.9	26.8	28.0	27.6
64	47.7	25.6	22.2	23.5	23.5	24.1

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 16

NB \ M	50	100	200	300	400	500
1	47.7	63.8	56.6	54.8	53.8	53.3
16	31.8	42.2	39.4	39.7	39.4	40.0
32	32.1	31.9	31.9	32.0	33.0	32.3
48	15.9	21.3	25.5	26.2	26.9	27.1
64	47.7	21.3	21.3	23.0	23.0	23.3

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'N', N = 100

NB \ M	50	100	200	300	400	500
1	49.7	49.8	54.2	54.5	53.3	53.5
16	39.9	47.0	47.7	48.3	48.8	48.9
32	39.9	47.0	45.6	45.8	46.4	46.8
48	33.1	39.9	42.0	43.9	44.4	44.6
64	49.7	40.0	39.5	41.4	42.1	42.3

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 100

NB \ M	50	100	200	300	400	500
1	33.2	33.2	37.6	38.1	38.5	39.4
16	24.9	31.9	33.3	34.1	35.3	35.1
32	28.4	29.6	32.0	32.7	32.4	33.7
48	18.1	25.7	29.1	30.5	31.3	31.4
64	33.2	24.9	27.3	28.1	30.0	31.6

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 1

NB \ M	50	100	200	300	400	500
1	.0	.0	32.0	36.0	32.0	33.3
16	.0	4.0	6.4	8.0	6.7	7.4
32	2.0	4.0	3.6	3.8	3.7	4.0
48	2.0	2.0	2.7	2.5	2.7	2.9
64	.0	2.7	2.1	2.2	2.1	2.1

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 1

NB \ M	50	100	200	300	400	500
1	.0	8.0	32.0	36.0	42.6	28.6
16	2.0	8.0	6.4	7.2	6.7	7.4
32	2.0	4.0	3.6	4.0	3.8	3.8
48	2.0	2.0	2.5	2.4	2.5	2.6
64	.0	2.0	1.8	1.8	2.0	2.0

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 2

NB \ M	50	100	200	300	400	500
1	.0	16.0	32.0	71.9	42.6	40.0
16	.0	5.3	10.7	12.0	12.8	12.5
32	.0	8.0	7.1	7.6	7.3	7.4
48	4.0	4.0	4.9	5.0	5.3	5.4
64	.0	4.0	3.6	3.9	4.0	3.9

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 2

NB \ M	50	100	200	300	400	500
1	4.0	16.0	63.9	36.0	51.2	44.4
16	4.0	8.0	10.7	11.1	12.2	12.5
32	4.0	4.0	6.4	6.5	6.7	7.0
48	2.0	4.0	4.6	4.5	4.8	5.1
64	.0	3.2	3.6	3.6	3.6	4.0

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 16

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'N', N = 100

NB \ M	50	100	200	300	400	500
1	49.7	53.1	53.3	52.9	53.3	53.5
16	49.7	44.4	50.0	48.0	48.5	49.0
32	39.9	44.4	44.4	45.5	46.9	46.7
48	33.1	39.9	41.5	43.1	43.7	44.2
64	49.7	36.3	39.0	40.9	41.8	42.2

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 1

NB \ M	50	100	200	300	400	500
1	23.8	35.9	47.9	71.9	63.9	49.9
16	6.0	8.0	10.6	12.0	9.8	10.0
32	4.0	4.0	5.3	5.1	5.3	5.3
48	2.0	4.0	3.6	3.4	3.7	3.6
64	24.8	2.6	2.7	2.8	2.7	2.7

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 1

NB \ M	50	100	200	300	400	500
1	24.8	39.9	47.9	35.9	42.9	67.1
16	6.0	8.0	10.6	9.0	9.1	9.5
32	4.0	4.0	4.5	4.8	4.9	5.1
48	2.0	4.0	3.2	3.4	3.5	3.4
64	23.8	2.0	2.3	2.6	2.6	2.6

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 2

NB \ M	50	100	200	300	400	500
1	35.8	47.8	63.9	71.9	63.9	56.9
16	11.9	15.9	16.0	16.0	16.0	17.4
32	8.0	8.0	9.2	9.6	9.5	9.5
48	6.0	5.4	6.4	6.9	6.7	6.8
64	37.8	5.3	4.9	5.3	5.2	5.2

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 2

NB \ M	50	100	200	300	400	500
1	37.8	47.8	31.9	48.3	63.9	66.6
16	9.9	15.9	21.1	18.0	17.0	16.0
32	7.9	8.0	8.0	9.0	9.5	9.3
48	4.0	5.4	5.8	6.3	6.6	6.6
64	35.8	4.0	4.6	5.0	5.0	5.0

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 16

M / NB	50	100	200	300	400	500
1	31.8	31.9	39.3	38.4	38.6	40.0
16	15.9	31.9	28.4	28.8	28.4	29.6
32	31.8	18.2	23.2	24.5	23.5	24.6
48	15.9	14.2	19.7	18.9	20.7	20.6
64	15.9	16.0	16.5	17.7	17.8	18.5

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 16

M / NB	50	100	200	300	400	500
1	31.8	31.9	34.1	37.1	37.9	39.0
16	10.6	21.3	28.4	28.8	30.5	29.1
32	10.6	21.3	22.2	22.6	23.3	24.0
48	15.9	18.2	19.7	19.2	19.7	20.2
64	31.8	18.2	17.0	16.7	16.8	18.2

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 100

M / NB	50	100	200	300	400	500
1	28.4	38.0	36.3	38.7	39.5	39.0
16	28.4	31.9	33.6	34.8	34.5	34.9
32	28.4	28.5	31.6	33.0	31.7	33.7
48	24.9	25.7	29.6	29.6	31.7	32.6
64	33.2	27.5	28.0	30.0	30.2	30.8

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 100

M / NB	50	100	200	300	400	500
1	33.2	36.3	37.2	37.5	38.5	39.7
16	28.4	33.2	32.6	33.8	35.1	34.8
32	24.9	28.5	31.6	32.0	33.0	33.7
48	18.1	26.6	29.6	30.7	32.1	31.6
64	28.4	24.2	27.1	28.7	30.0	29.9

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	2.7	10.9	8.8	9.0	8.8	8.3
16	.0	5.4	5.5	5.8	5.9	5.7
32	2.7	2.7	3.6	4.1	3.6	4.0
48	1.3	3.6	3.1	2.7	3.0	3.0
64	.0	2.7	2.6	2.6	2.4	2.3

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 1

M / NB	50	100	200	300	400	500
1	47.7	63.8	51.1	54.8	53.8	53.3
16	31.8	42.9	39.2	39.7	39.4	40.0
32	31.8	31.9	31.9	32.0	32.5	32.6
48	21.4	21.3	26.9	27.4	27.3	28.1
64	47.7	21.3	22.2	23.5	23.8	23.9

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 16

M / NB	50	100	200	300	400	500
1	47.7	42.9	51.3	54.8	53.9	54.2
16	31.8	42.2	39.4	38.3	40.2	40.0
32	31.8	25.4	32.0	32.0	32.5	32.3
48	21.4	25.6	25.6	26.2	26.9	27.3
64	47.7	25.4	22.2	22.6	23.5	23.2

ZUNMTR with SIDE = 'L', UPLO = 'U', TRANS = 'C', N = 100

M / NB	50	100	200	300	400	500
1	49.7	50.0	52.4	53.3	53.8	53.7
16	49.7	44.4	47.7	48.3	49.2	49.2
32	39.6	44.3	45.0	46.4	46.5	46.7
48	33.1	38.0	42.6	43.6	44.0	44.5
64	49.7	39.9	40.5	41.6	41.9	42.4

ZUNMTR with SIDE = 'L', UPLO = 'L', TRANS = 'C', N = 100

M / NB	50	100	200	300	400	500
1	49.7	50.0	53.3	53.3	53.3	53.7
16	49.7	44.3	47.7	48.3	48.8	49.0
32	33.1	42.0	44.4	45.8	46.7	46.9
48	33.1	38.0	42.0	42.8	43.8	44.2
64	49.7	36.2	39.5	40.9	41.7	42.1

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 1

N / NB	50	100	200	300	400	500
1	17.5	27.2	28.9	32.6	34.9	34.3
16	5.4	10.9	10.9	9.9	10.3	11.0
32	4.0	5.4	6.2	6.6	6.5	6.4
48	4.0	3.7	4.4	4.5	4.6	4.6
64	16.2	5.4	3.4	3.5	3.6	3.6

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 1

N	50	100	200	300	400	500
NB						
1	.0	10.9	10.9	11.0	8.8	8.6
16	2.7	5.4	7.3	5.8	5.9	5.8
32	2.7	3.6	4.0	3.8	3.9	3.9
48	2.7	3.6	2.9	3.1	3.0	3.0
64	.0	2.2	2.2	2.2	2.2	2.1

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 2

N	50	100	200	300	400	500
NB						
1	.0	9.4	12.6	12.2	12.1	12.2
16	.0	9.4	9.5	9.5	8.9	8.9
32	4.7	6.3	6.3	6.3	6.5	6.6
48	4.7	4.7	5.0	4.6	5.0	5.0
64	.0	6.3	3.6	4.2	4.1	4.0

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 2

N	50	100	200	300	400	500
NB						
1	.0	18.8	15.1	12.2	12.1	13.2
16	.0	6.3	10.8	9.0	9.2	9.1
32	4.7	6.3	6.3	6.3	6.5	6.3
48	1.6	4.7	4.4	5.0	5.0	4.8
64	.0	4.7	3.6	3.7	3.7	3.6

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 16

N	50	100	200	300	400	500
NB						
1	.0	25.9	30.7	31.8	32.7	33.0
16	.0	25.9	29.0	29.4	29.0	27.7
32	16.0	21.6	22.7	24.0	22.0	23.9
48	16.0	18.5	19.3	21.0	19.9	20.8
64	32.1	18.5	17.4	17.5	17.9	18.1

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 16

N	50	100	200	300	400	500
NB						
1	32.1	43.2	32.6	31.8	30.7	32.4
16	32.1	25.9	30.7	28.0	28.6	28.2
32	32.1	21.6	21.7	22.2	24.0	23.5
48	32.1	16.2	20.1	20.6	20.1	20.2
64	32.1	18.5	16.3	16.6	16.9	16.7

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 100

N	50	100	200	300	400	500

N	50	100	200	300	400	500
NB						
1	17.5	21.8	21.9	33.1	35.2	30.4
16	8.1	10.9	10.9	11.0	11.0	11.0
32	5.4	5.4	6.3	5.8	6.3	6.5
48	2.7	3.7	4.0	4.3	4.4	4.4
64	17.5	2.7	3.4	3.4	3.4	3.4

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 2

N	50	100	200	300	400	500
NB						
1	29.7	28.2	50.0	33.9	37.9	39.5
16	14.0	28.2	15.0	17.0	16.0	16.9
32	9.3	9.4	9.4	11.3	10.5	10.8
48	7.0	9.4	6.9	7.7	7.6	7.6
64	27.9	6.2	5.8	5.9	5.8	5.9

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 2

N	50	100	200	300	400	500
NB						
1	27.9	37.6	37.8	42.6	43.4	43.1
16	11.6	18.8	15.2	19.0	16.8	16.3
32	9.3	9.4	9.5	10.0	10.1	10.1
48	4.7	6.3	6.9	7.1	7.2	7.4
64	26.6	4.7	5.4	5.5	5.6	5.7

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 16

N	50	100	200	300	400	500
NB						
1	48.1	64.8	52.1	51.0	52.3	51.9
16	32.1	43.5	43.4	43.5	42.6	43.0
32	43.1	32.4	34.8	33.6	34.8	34.4
48	16.0	25.8	27.4	28.6	29.0	29.2
64	48.1	26.0	23.7	25.0	25.2	25.3

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 16

N	50	100	200	300	400	500
NB						
1	48.1	42.8	52.1	53.4	51.0	50.3
16	32.1	43.5	40.1	41.9	42.6	43.0
32	32.1	32.4	32.6	33.6	34.3	34.4
48	21.6	21.6	27.4	28.0	28.3	28.4
64	48.1	21.8	22.7	24.0	24.3	24.4

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'N', M = 100

N	50	100	200	300	400	500

NB						
1	49.2	41.8	39.5	40.2	41.3	40.6
16	39.3	39.7	38.5	39.4	39.3	39.2
32	24.6	30.6	35.5	35.5	35.1	35.8
48	24.6	29.4	32.3	30.8	33.5	33.7
64	49.2	29.4	30.2	31.9	31.9	32.6

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 100

N	50	100	200	300	400	500
NB						
1	49.2	44.2	39.0	40.5	40.8	41.4
16	32.8	37.9	39.5	39.1	40.7	39.4
32	28.1	31.8	34.0	34.6	35.6	35.9
48	28.1	29.4	31.6	32.9	33.6	33.4
64	49.2	27.4	29.9	30.4	30.4	32.0

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 1

N	50	100	200	300	400	500
NB						
1	.0	10.9	10.9	8.2	8.4	8.3
16	2.7	5.4	6.3	6.2	5.7	5.7
32	.0	3.6	4.4	3.9	3.5	4.0
48	2.7	2.7	3.1	2.9	3.1	3.0
64	2.7	2.7	2.3	2.6	2.4	2.5

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 1

N	50	100	200	300	400	500
NB						
1	.0	10.9	14.6	8.2	8.8	8.1
16	2.7	5.4	5.5	5.2	6.3	5.7
32	2.7	5.4	4.0	3.9	3.9	4.0
48	2.7	2.7	3.1	3.0	2.9	3.0
64	.0	2.2	2.6	2.1	2.3	2.3

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 2

N	50	100	200	300	400	500
NB						
1	4.7	18.8	10.8	12.2	12.6	13.2
16	4.7	18.8	8.4	9.0	8.9	9.1
32	4.7	4.7	6.9	6.8	5.9	6.6
48	.0	3.8	5.0	4.6	4.9	5.0
64	.0	3.8	3.6	4.4	4.2	4.0

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 2

N	50	100	200	300	400	500
NB						

NB						
1	66.1	61.0	60.3	61.1	60.2	59.3
16	49.1	53.0	56.1	57.2	57.7	57.9
32	49.1	46.8	51.6	52.6	54.1	54.1
48	32.8	44.2	47.0	48.3	49.9	50.1
64	66.1	41.9	43.2	45.9	46.6	47.0

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'N', M = 100

N	50	100	200	300	400	500
NB						
1	66.1	61.2	60.3	60.0	59.1	59.3
16	49.1	56.7	57.1	57.2	58.3	57.9
32	49.1	46.7	51.5	52.6	53.4	53.9
48	39.1	44.1	46.3	48.0	49.3	49.8
64	66.1	39.8	43.2	45.0	45.9	46.9

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 1

N	50	100	200	300	400	500
NB						
1	18.8	27.2	85.4	33.1	35.2	30.5
16	6.7	10.9	10.9	11.0	11.0	11.0
32	5.4	5.4	6.3	6.6	6.5	6.4
48	2.7	3.6	4.4	4.5	4.6	4.6
64	20.2	3.7	3.4	3.7	3.5	3.5

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 1

N	50	100	200	300	400	500
NB						
1	18.8	27.2	29.4	32.6	29.2	30.5
16	8.1	10.9	10.9	9.9	10.3	10.5
32	4.0	5.4	6.2	6.2	6.1	6.4
48	4.0	3.6	4.4	4.3	4.4	4.4
64	20.8	3.7	3.4	3.3	3.3	3.4

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 2

N	50	100	200	300	400	500
NB						
1	27.9	37.6	37.8	43.1	43.4	39.5
16	11.6	9.4	15.2	17.0	16.8	16.9
32	9.3	9.4	10.8	10.7	10.5	10.3
48	4.7	6.3	7.6	7.4	7.4	7.6
64	27.9	6.3	5.4	5.9	5.9	5.9

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 2

N	50	100	200	300	400	500
NB						

1	4.7	18.8	18.9	12.2	13.2	12.8
16	4.7	9.4	8.4	9.5	8.9	9.3
32	4.7	4.7	6.9	6.1	6.3	6.4
48	4.7	4.7	4.7	4.6	4.8	4.8
64	4.7	3.1	3.8	3.7	3.6	3.6

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 16

N NB	50	100	200	300	400	500
1	.0	32.4	30.7	31.8	31.7	31.4
16	16.0	32.4	29.0	28.7	27.5	27.9
32	32.1	21.6	23.7	23.5	23.0	23.7
48	10.7	18.5	19.3	18.7	20.5	20.7
64	32.1	18.5	16.8	18.1	18.0	18.0

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 16

N NB	50	100	200	300	400	500
1	32.1	64.8	34.8	30.1	31.7	32.4
16	16.0	25.9	27.4	28.0	27.9	28.7
32	16.0	21.6	21.7	23.5	23.8	23.7
48	16.0	18.5	20.1	20.3	19.9	19.8
64	32.1	14.4	15.8	16.6	16.6	17.2

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 100

N NB	50	100	200	300	400	500
1	39.3	46.8	39.5	40.9	40.9	40.6
16	28.1	36.1	39.5	38.7	39.8	38.5
32	32.8	34.6	34.7	35.7	35.4	36.0
48	24.6	27.4	31.3	30.9	33.7	33.7
64	39.3	28.4	29.3	32.0	32.4	33.0

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 100

N NB	50	100	200	300	400	500
1	49.2	44.2	39.9	39.6	40.8	41.1
16	32.8	39.7	37.2	39.8	40.6	39.5
32	39.3	33.1	34.0	34.8	35.1	36.1
48	28.1	28.4	32.3	32.6	33.4	33.3
64	39.3	28.4	28.5	30.4	31.0	32.0

*** Speed of ZGEBRD in megaflops ***

(NB, NX)	M N	50 50	100 100	200 200	300 300	400 400	500 500

1	27.9	37.6	37.8	34.2	37.9	43.1
16	11.6	12.4	15.0	15.5	16.0	16.3
32	7.0	9.4	9.4	9.5	10.5	9.9
48	4.7	6.2	6.9	7.1	7.2	7.2
64	27.9	6.2	5.4	5.5	5.5	5.7

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 16

N NB	50	100	200	300	400	500
1	48.1	43.5	52.1	51.1	51.0	51.1
16	32.1	42.8	40.1	42.0	42.7	43.0
32	16.0	32.4	32.6	34.5	34.3	34.8
48	21.6	25.8	27.4	28.6	28.6	29.2
64	48.1	25.8	23.7	24.5	24.6	25.1

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 16

N NB	50	100	200	300	400	500
1	48.1	64.8	52.1	53.4	49.8	50.3
16	32.3	32.4	43.4	42.0	41.8	42.4
32	21.6	32.8	32.6	33.6	33.7	33.7
48	16.0	26.0	27.4	28.0	28.6	28.4
64	48.1	18.4	22.7	23.5	24.3	24.4

ZUNMTR with SIDE = 'R', UPLO = 'U', TRANS = 'C', M = 100

N NB	50	100	200	300	400	500
1	65.0	66.5	60.3	60.0	60.2	59.5
16	49.1	53.0	57.1	57.6	58.3	57.9
32	39.5	46.8	51.5	53.4	53.9	54.3
48	32.8	41.9	46.3	49.0	49.7	50.5
64	65.0	39.7	43.2	45.6	46.3	46.9

ZUNMTR with SIDE = 'R', UPLO = 'L', TRANS = 'C', M = 100

N NB	50	100	200	300	400	500
1	65.0	56.9	60.3	60.5	59.1	58.9
16	49.1	53.0	56.1	57.2	58.0	57.9
32	39.1	49.6	51.5	53.8	53.4	53.9
48	39.1	39.8	46.3	48.0	48.9	49.8
64	65.0	37.9	42.6	44.7	45.9	46.6

*** Speed of ZGEBRD in megaflops ***

(NB, NX)	M N	50 50	100 100	200 200	300 300	400 400	500 500

(NB, NX)						
(1, 0)	27.3	36.0	37.5	39.5	39.8	39.8
(16, 48)	22.8	27.0	30.3	33.7	32.9	34.0
(32, 128)	27.3	36.0	27.9	28.6	30.5	31.4
(48, 128)	34.1	37.2	24.2	26.5	27.8	29.3
(64, 128)	34.1	38.5	20.4	24.1	25.9	27.2

*** Speed of ZUNGBR in megaflops ***

ZUNGBR with VECT = 'Q', N = MIN(M,K)

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
(NB, NX)							
(1, 0)		34.1	38.5	38.3	39.6	39.6	39.7
(16, 48)		34.1	33.7	35.2	35.5	36.2	36.3
(32, 128)		34.1	38.5	34.6	34.9	35.8	35.7
(48, 128)		34.1	35.9	32.0	34.0	35.1	35.3
(64, 128)		68.1	41.5	30.9	32.9	33.3	33.9

ZUNGBR with VECT = 'P', M = MIN(K,N)

	K	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		64.2	34.9	38.4	39.6	40.4	41.3
(16, 48)		64.2	30.8	33.5	35.4	37.2	36.3
(32, 128)		32.1	37.4	34.1	34.3	35.9	36.5
(48, 128)		32.1	37.4	32.0	33.9	35.4	35.8
(64, 128)		32.1	37.4	30.2	32.6	33.8	35.2

*** Speed of ZUNMBR in megaflops ***

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 1

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		2.1	.0	32.3	72.4	42.9	33.5
16		2.1	4.1	6.5	7.2	7.1	6.9
32		2.1	4.1	3.6	3.6	3.5	3.9
48		2.1	2.0	2.3	2.4	2.6	2.7
64		.0	1.6	1.8	1.9	1.9	2.0

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 2

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		.0	16.3	32.3	29.0	51.4	40.1
16		4.1	8.1	10.8	12.1	11.7	12.2
32		.0	4.1	6.5	6.9	6.8	7.3
48		4.1	3.3	4.6	4.8	5.0	5.1

(NB, NX)						
(1, 0)	68.2	56.8	55.4	56.2	56.1	56.1
(16, 48)	34.1	41.5	47.1	49.8	50.9	51.4
(32, 128)	68.2	53.9	45.2	46.6	48.0	49.2
(48, 128)	45.1	53.9	41.5	43.9	45.8	47.1
(64, 128)	45.8	53.9	37.5	41.3	43.2	45.2

*** Speed of ZUNGBR in megaflops ***

ZUNGBR with VECT = 'Q', N = MIN(M,K)

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
(NB, NX)							
(1, 0)		34.0	54.1	53.6	52.8	52.3	52.7
(16, 48)		45.0	49.1	48.8	49.8	50.0	50.5
(32, 128)		34.0	53.9	47.7	48.3	49.0	49.6
(48, 128)		51.7	54.1	45.6	47.2	47.9	48.7
(64, 128)		45.0	49.1	42.9	45.7	46.6	47.7

ZUNGBR with VECT = 'P', M = MIN(K,N)

	K	50	100	200	300	400	500
	N	50	100	200	300	400	500
(NB, NX)							
(1, 0)		64.1	57.9	60.4	59.6	59.2	59.7
(16, 48)		32.1	52.5	54.9	57.0	57.8	57.9
(32, 128)		64.1	58.3	52.8	54.2	55.7	56.5
(48, 128)		64.1	57.9	50.3	52.0	53.8	55.3
(64, 128)		64.1	58.3	47.0	50.7	52.2	53.9

*** Speed of ZUNMBR in megaflops ***

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 1

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		17.6	28.5	48.4	47.8	42.5	50.1
16		6.9	8.1	8.1	10.4	10.7	9.6
32		3.1	4.1	4.6	4.8	4.9	5.2
48		2.1	2.7	3.2	3.3	3.4	3.4
64		18.6	2.7	2.5	2.5	2.6	2.6

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 2

	M	50	100	200	300	400	500
	K	50	100	200	300	400	500
NB							
1		33.1	48.8	64.5	72.3	64.2	66.8
16		10.3	8.1	16.1	14.5	16.1	16.7
32		8.3	8.1	8.1	9.0	9.2	9.1
48		4.1	5.5	5.9	6.6	6.4	6.5

64	.0	3.3	3.4	3.7	3.7	3.8

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	33.1	43.4	43.0	41.4	39.6	39.2
16	33.1	26.0	27.2	28.3	30.7	30.3
32	16.6	18.6	22.5	24.7	23.9	24.5
48	16.6	18.6	18.4	19.0	19.0	20.2
64	33.1	16.3	16.1	17.0	17.1	17.6

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	29.6	33.9	38.9	37.7	38.7	38.9
16	25.9	31.3	33.6	34.7	35.1	35.5
32	25.9	29.1	33.3	32.5	33.0	33.5
48	17.3	27.1	29.6	30.4	31.1	32.0
64	29.6	26.3	27.6	29.1	30.0	30.5

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	32.3	36.2	32.1	40.1
16	.0	8.1	6.5	5.6	7.6	7.2
32	2.1	2.7	4.6	3.6	3.7	3.9
48	2.1	2.7	2.3	2.5	2.6	2.6
64	.0	1.6	1.9	1.9	1.9	2.0

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	.0	32.3	48.3	36.7	44.6
16	4.1	16.3	10.8	11.1	12.9	11.8
32	.0	8.1	7.2	6.9	7.1	6.8
48	2.1	4.1	4.3	4.5	4.9	5.0
64	.0	3.3	3.4	3.5	3.7	3.8

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						

64	35.2	5.5	5.0	4.8	4.9	5.0

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	49.6	65.1	57.5	55.2	54.1	53.5
16	49.6	32.5	39.8	40.0	39.6	40.1
32	22.2	25.9	30.4	31.3	32.1	32.4
48	21.9	25.9	25.9	26.3	26.7	27.2
64	55.6	21.7	21.5	23.2	23.1	23.4

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'N', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.7	50.8	52.9	52.9	53.3	53.5
16	34.5	45.3	47.5	48.3	49.5	49.4
32	34.5	40.8	44.8	45.6	46.2	46.7
48	34.5	38.8	41.9	42.8	43.6	45.1
64	51.7	37.0	38.9	40.7	41.7	42.6

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 1

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	25.8	36.6	48.4	48.6	64.2	50.1
16	8.3	8.1	10.8	10.4	9.2	9.6
32	3.5	4.1	4.6	4.8	4.9	5.0
48	2.1	2.7	3.2	3.3	3.4	3.5
64	24.8	2.0	2.5	2.6	2.6	2.6

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 2

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	35.2	48.8	32.2	48.6	51.6	57.5
16	8.3	16.3	16.1	16.1	16.1	16.1
32	6.2	8.1	10.7	9.7	9.2	9.3
48	4.1	5.5	5.9	6.3	6.4	6.5
64	37.2	4.1	5.0	4.8	4.9	5.0

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 16

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						

1	33.1	32.6	43.0	38.6	38.8	38.7
16	16.6	21.7	27.2	29.0	30.2	29.5
32	16.6	21.7	22.5	24.1	24.5	23.6
48	16.6	18.6	18.4	20.0	20.0	20.7
64	33.1	14.5	15.2	17.0	17.4	17.6

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	34.5	38.8	36.7	37.9	38.8	39.0
16	29.6	32.6	33.6	33.8	35.2	36.0
32	25.9	28.1	30.7	32.8	33.0	33.8
48	23.0	26.3	28.8	30.0	32.2	31.8
64	34.5	23.9	27.6	28.9	30.7	30.5

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	2.8	11.1	11.1	8.3	8.4	8.9
16	2.8	5.6	4.9	6.2	5.7	6.0
32	2.8	3.7	4.4	4.0	3.9	3.9
48	1.4	2.2	2.9	2.9	3.0	3.0
64	.0	2.2	2.2	2.4	2.3	2.4

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	19.2	15.3	12.3	12.7	12.5
16	.0	9.6	9.5	9.0	9.5	9.5
32	4.8	4.8	5.9	6.6	6.0	6.5
48	4.8	3.8	5.1	5.0	4.8	5.1
64	.0	3.2	4.0	3.9	3.7	4.0

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	33.1	31.0	31.1	31.8	32.8
16	33.4	26.5	29.3	28.9	28.4	28.0
32	16.7	26.5	22.9	23.2	23.6	23.6
48	11.1	26.5	19.5	20.0	20.4	20.0
64	33.4	18.9	16.5	16.9	17.8	17.5

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 100

1	49.6	43.7	51.6	52.6	54.1	54.4
16	33.1	43.0	36.9	38.6	40.4	40.1
32	33.1	32.5	30.4	32.2	32.1	32.4
48	16.5	25.9	25.8	26.3	27.8	27.4
64	33.1	18.7	22.5	22.7	23.1	23.3

ZUNMBR with VECT = 'Q', SIDE = 'L', TRANS = 'C', N = 100

M	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	41.6	54.3	52.9	53.3	53.3	53.5
16	41.6	45.3	47.5	48.3	49.4	49.1
32	41.2	40.7	44.2	45.8	46.2	46.7
48	34.7	38.8	41.9	43.1	43.9	44.6
64	51.7	37.0	38.9	41.2	41.7	42.3

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	19.6	38.8	29.2	33.3	35.4	30.7
16	7.0	11.1	11.0	9.9	10.4	10.6
32	4.2	5.5	6.3	5.8	6.3	6.3
48	2.8	3.7	4.0	4.3	4.4	4.4
64	15.4	2.8	3.4	3.3	3.3	3.4

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	29.0	38.3	38.2	42.9	38.1	39.6
16	12.1	9.6	15.2	17.1	16.9	16.4
32	7.3	9.6	9.5	10.1	10.5	9.9
48	4.8	6.3	7.0	7.1	7.3	7.3
64	26.6	6.3	5.1	5.5	5.6	5.7

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	50.1	66.1	52.6	51.4	50.0	50.5
16	33.4	44.4	40.5	42.3	43.8	42.6
32	22.4	26.6	33.0	33.8	33.9	34.5
48	16.7	26.3	27.7	28.2	28.4	28.5
64	50.1	22.2	22.9	24.1	24.1	24.5

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'N', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	41.0	42.7	40.4	40.3	40.0	40.8
16	41.0	38.6	40.4	39.2	39.9	38.6
32	29.3	32.4	34.7	35.5	35.1	35.8
48	29.3	29.0	32.3	32.7	33.5	33.0
64	41.0	27.0	30.7	30.7	31.5	31.3

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	11.1	11.1	9.9	9.3	8.6
16	2.8	5.6	6.3	5.5	5.7	5.7
32	2.8	3.7	4.0	3.8	4.0	3.9
48	2.8	2.8	3.2	2.8	2.8	3.1
64	2.8	2.8	2.3	2.3	2.4	2.4

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	.0	9.6	15.3	13.2	13.9	12.9
16	4.8	6.4	8.5	9.5	9.0	9.7
32	4.8	6.4	6.9	6.1	6.2	6.3
48	4.8	4.8	4.2	4.5	4.8	4.9
64	.0	3.8	3.8	4.0	4.0	3.9

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	33.4	33.1	32.9	32.9	31.8	32.2
16	16.7	26.5	27.7	28.2	28.4	28.0
32	16.7	22.1	25.1	23.2	23.9	23.6
48	16.7	16.5	19.5	19.7	20.0	20.1
64	33.4	16.5	17.0	17.1	18.0	17.5

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.2	40.6	40.9	41.9	40.3	41.1
16	34.1	38.6	38.9	39.2	39.8	38.4
32	29.3	32.4	35.9	35.2	35.7	36.2
48	29.3	28.0	32.6	31.8	33.4	33.1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	68.7	62.4	60.9	59.4	58.8	59.0
16	51.1	50.8	57.7	57.1	58.3	57.8
32	40.7	47.7	50.4	52.5	53.7	53.9
48	34.1	42.6	46.1	48.7	49.2	49.7
64	68.7	38.6	43.0	45.3	46.0	46.8

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 1

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	15.4	27.7	29.7	32.8	29.4	30.7
16	8.4	11.1	11.0	11.1	11.8	10.6
32	4.7	5.5	5.5	6.2	6.3	6.3
48	2.8	3.7	4.4	4.3	4.4	4.4
64	21.0	2.8	3.4	3.3	3.3	3.4

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 2

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	26.6	28.8	38.2	42.9	43.6	39.6
16	9.7	39.3	15.3	15.6	16.9	16.4
32	9.7	9.6	9.5	9.5	10.2	10.1
48	7.3	6.4	6.9	6.9	7.3	7.4
64	29.0	4.8	5.5	5.5	5.5	5.6

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 16

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	50.1	43.7	52.9	51.4	50.0	49.7
16	50.1	43.7	40.4	42.2	42.0	42.6
32	33.4	33.0	32.9	32.8	33.9	33.8
48	16.7	22.2	27.7	28.1	28.0	28.8
64	50.1	22.0	21.9	24.1	23.9	24.5

ZUNMBR with VECT = 'Q', SIDE = 'R', TRANS = 'C', M = 100

N	50	100	200	300	400	500
K	50	100	200	300	400	500
NB						
1	51.1	62.2	62.1	59.9	58.8	59.0
16	51.1	54.1	56.7	57.1	57.5	57.8
32	41.1	47.7	51.2	52.9	53.7	53.9
48	34.1	40.6	46.8	48.0	49.0	49.8

64	41.0	27.0	29.3	30.5	31.7	31.2

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	8.1	4.6	4.8	4.3	4.0
16	.0	4.1	2.9	3.0	2.6	2.4
32	2.1	2.7	2.0	2.1	2.1	2.0
48	1.0	2.7	1.9	1.6	1.7	1.6
64	.0	1.6	1.4	1.5	1.5	1.4

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	4.1	16.3	6.5	5.8	5.7	5.4
16	4.1	8.1	5.4	4.5	4.6	4.1
32	4.1	4.1	3.8	3.7	3.6	3.5
48	4.1	3.3	3.1	3.1	3.1	2.9
64	.0	2.7	2.7	2.7	2.7	2.6

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	16.6	14.5	8.2	8.0	7.8	7.3
16	11.0	16.3	11.0	10.7	10.3	9.9
32	16.6	14.5	11.5	10.7	10.0	9.4
48	11.0	14.5	10.8	9.9	9.7	8.8
64	16.6	13.0	10.1	9.9	9.4	8.9

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	15.9	14.5	8.6	8.2	8.0	7.6
16	20.7	20.9	13.1	12.7	12.0	11.6
32	20.7	20.4	13.9	13.5	12.7	11.9
48	23.0	20.4	13.8	13.3	12.8	12.2
64	15.9	22.0	14.9	13.7	13.2	12.2

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						

64	51.1	40.5	43.6	45.0	46.0	46.8

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	19.6	24.4	32.2	36.2	43.2	33.4
16	4.1	8.1	6.4	7.2	7.1	6.9
32	4.1	4.1	4.6	4.5	4.6	4.6
48	3.1	2.7	3.2	3.3	3.5	3.6
64	19.6	2.0	2.5	2.7	2.7	2.7

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	24.8	43.7	64.5	48.6	42.8	44.7
16	10.3	8.1	13.0	12.1	12.2	11.8
32	8.3	8.1	9.2	8.5	8.3	8.4
48	6.2	5.5	5.9	6.3	6.3	6.3
64	31.0	5.4	5.0	5.2	5.1	5.1

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	49.6	65.1	51.6	50.4	50.2	49.4
16	33.1	32.5	30.4	32.2	31.7	31.8
32	33.1	26.2	27.2	28.3	27.8	28.2
48	16.5	21.7	24.6	24.6	25.1	24.9
64	49.6	21.7	21.5	21.9	22.4	22.3

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'N', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	51.7	54.1	52.9	53.3	51.0	50.3
16	34.5	40.8	39.8	40.0	39.8	39.4
32	41.6	38.7	39.8	40.0	39.6	39.4
48	34.5	37.0	38.4	38.5	38.6	38.5
64	51.7	35.4	37.1	37.1	37.6	37.5

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 1

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						

1	.0	8.1	4.0	4.3	4.0	3.6
16	2.1	2.7	2.7	2.7	2.7	2.5
32	2.1	2.7	2.3	2.2	2.1	2.0
48	2.1	1.6	1.5	1.7	1.7	1.6
64	2.1	2.0	1.5	1.5	1.5	1.4

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	.0	8.1	5.9	5.6	5.7	5.1
16	.0	5.4	4.6	4.4	4.4	4.2
32	4.1	4.1	4.0	3.7	3.6	3.5
48	2.1	3.3	3.4	3.0	3.1	2.9
64	.0	2.7	2.6	2.7	2.7	2.6

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	11.0	13.0	8.2	7.8	7.6	7.2
16	16.6	16.3	11.2	10.6	10.4	9.6
32	16.6	16.3	11.2	10.6	10.2	9.3
48	16.6	16.3	10.8	9.8	9.5	9.0
64	16.6	14.5	10.5	9.7	9.3	8.9

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	15.9	14.5	8.7	8.5	8.0	7.6
16	20.7	18.9	13.0	12.3	12.1	11.7
32	23.0	20.9	14.0	13.5	12.7	11.7
48	23.0	21.4	13.9	13.3	12.8	12.1
64	15.9	19.9	15.2	13.9	13.1	12.1

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	11.1	3.7	3.7	3.5	3.4
16	2.8	3.7	3.2	2.9	2.9	2.9
32	2.8	2.8	2.6	2.6	2.5	2.4
48	2.8	2.2	2.2	2.0	2.1	2.1
64	.0	1.9	1.9	1.9	1.8	1.8

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 2

1	19.6	28.5	48.4	36.2	43.2	28.5
16	6.2	8.1	6.5	6.6	7.1	7.2
32	3.1	4.1	4.0	4.5	4.6	4.6
48	2.1	4.1	3.2	3.4	3.5	3.5
64	20.7	2.7	2.5	2.7	2.7	2.7

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 2

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	26.9	32.5	32.2	47.8	42.8	44.7
16	10.3	10.8	12.8	12.1	12.9	12.6
32	6.2	8.1	9.2	8.0	8.9	8.4
48	4.1	5.5	6.4	6.3	6.6	6.4
64	31.0	4.1	5.0	5.0	5.0	5.1

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 16

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	33.1	43.7	51.6	55.2	50.2	48.6
16	33.1	32.5	32.2	32.2	31.6	31.5
32	16.5	26.2	30.3	28.3	28.2	27.9
48	22.2	25.9	25.9	25.2	24.8	24.9
64	49.6	21.7	21.5	22.7	22.4	22.1

ZUNMBR with VECT = 'P', SIDE = 'L', TRANS = 'C', N = 100

K	50	100	200	300	400	500
M	50	100	200	300	400	500
NB						
1	41.6	54.3	52.1	52.1	50.8	50.4
16	41.6	40.8	39.9	39.8	39.8	39.5
32	34.5	38.8	39.8	39.6	39.7	39.4
48	34.5	37.0	38.4	38.7	38.6	38.6
64	52.3	35.4	37.1	37.5	37.6	37.4

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	16.8	22.2	22.1	16.5	11.8	8.6
16	5.6	7.3	7.4	7.6	7.4	6.6
32	5.6	5.5	5.5	5.5	5.3	5.0
48	4.2	3.7	4.4	4.3	4.2	4.0
64	14.0	3.7	3.4	3.4	3.4	3.2

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	.0	6.4	6.4	5.7	5.8	5.7
16	.0	9.6	5.1	5.4	5.0	4.9
32	4.8	4.8	4.5	4.3	3.9	4.0
48	4.8	4.8	3.6	3.6	3.5	3.5
64	.0	3.2	2.9	3.1	3.0	3.0

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	33.4	22.1	22.9	22.3	22.4	21.9
16	16.7	22.1	21.1	20.4	20.6	20.6
32	33.4	22.1	18.2	18.2	18.6	17.9
48	16.7	18.9	16.0	15.8	16.0	16.5
64	33.4	18.9	15.5	15.4	14.7	14.7

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	41.0	40.6	38.0	39.2	37.7	37.1
16	34.1	35.3	38.0	36.1	36.4	36.6
32	29.3	30.0	32.9	32.7	32.8	31.8
48	25.6	30.0	30.5	31.0	31.4	32.0
64	41.0	27.0	28.1	30.6	29.8	30.8

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	2.8	5.6	4.0	3.8	3.7	3.7
16	2.8	3.7	2.9	2.9	3.0	3.0
32	2.8	3.7	2.5	2.5	2.5	2.4
48	2.8	2.2	2.1	2.1	2.1	2.1
64	2.8	2.8	1.8	1.9	1.8	1.8

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	4.8	9.6	6.9	6.1	6.1	6.0
16	4.8	4.8	5.1	4.9	5.0	4.8
32	4.8	4.8	4.5	4.5	4.1	3.9
48	4.8	4.8	3.8	3.4	3.7	3.4

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	21.8	28.8	38.2	21.6	19.1	13.6
16	12.1	19.2	12.7	12.2	12.2	10.8
32	9.7	7.7	9.5	8.6	8.7	8.2
48	7.3	6.3	6.9	6.9	6.9	6.5
64	24.2	4.8	5.5	5.7	5.6	5.5

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	50.1	66.1	52.6	45.5	42.9	39.1
16	33.4	33.5	40.5	38.2	37.5	36.4
32	33.4	44.4	32.9	32.0	31.9	31.6
48	16.7	22.0	27.7	28.2	28.0	27.6
64	50.1	22.0	22.9	24.2	24.7	24.1

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'N', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	51.1	57.9	60.9	58.5	56.2	55.7
16	51.1	54.1	56.6	56.2	56.2	56.2
32	51.1	47.7	51.2	52.2	53.0	52.9
48	34.1	42.6	46.8	48.3	49.0	49.3
64	67.6	40.6	44.2	45.6	46.5	46.8

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 1

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	15.4	22.2	22.1	14.1	12.6	8.9
16	7.0	7.5	8.8	8.3	7.3	6.7
32	4.2	5.5	5.5	5.5	5.3	5.0
48	2.8	5.5	4.0	4.1	4.1	4.0
64	18.2	3.7	3.4	3.4	3.4	3.3

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 2

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	24.2	28.8	25.6	24.4	19.0	14.0
16	9.7	12.7	12.7	13.2	12.2	10.8
32	7.3	9.6	9.5	9.0	8.7	8.1
48	4.8	6.4	7.0	7.2	6.9	6.5

64	4.8	3.2	3.2	3.0	3.0	3.0

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	33.4	26.5	23.9	22.7	22.6	22.8
16	33.4	26.5	21.9	21.1	20.8	20.0
32	16.7	22.1	20.3	18.2	17.5	17.4
48	16.7	16.5	16.0	16.4	16.7	15.9
64	33.4	14.7	14.6	14.8	14.6	14.8

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	51.2	36.9	38.4	39.8	38.2	37.6
16	41.0	40.6	36.3	36.1	36.3	36.7
32	34.1	32.4	33.3	32.8	32.9	33.4
48	29.3	29.0	30.5	31.0	31.8	32.1
64	41.0	29.0	29.1	30.6	30.0	30.0

End of tests
Total time u

LAPACK VERSION 1.1, released March 31, 1993

LAPACK timing, COMPLEX*16 band matrices

M:	1000				
N:	25	50	100	150	200
K:	1	2	16	100	
NB:	1	16	32	48	64
NX:	0	48	128	128	128
LDA:	602				

The minimum time a subroutine will be timed = .000 seconds

>>>>> Sample BLAS <<<<<

*** Speed of ZGBMV in megaflops ***
with LDA = 602

K	25	50	100	150	200
M					
1000	35.4	40.2	40.2	40.5	40.3

64	26.6	6.3	6.4	5.5	5.6	5.4

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 16

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	50.1	44.4	47.9	45.5	42.9	39.5
16	33.4	43.7	37.7	38.2	37.5	36.5
32	22.4	26.3	31.0	32.9	32.3	31.9
48	22.4	26.6	26.3	27.5	27.6	27.4
64	50.1	22.0	23.9	24.1	24.4	24.5

ZUNMBR with VECT = 'P', SIDE = 'R', TRANS = 'C', M = 100

K	50	100	200	300	400	500
N	50	100	200	300	400	500
NB						
1	51.1	62.4	59.8	57.6	56.5	55.7
16	51.1	50.6	54.7	55.8	56.2	56.2
32	51.1	47.7	52.1	52.5	53.0	53.1
48	41.1	45.1	47.5	48.3	49.2	49.3
64	51.1	40.6	43.6	45.3	46.2	46.7

End of tests
Total time used = 7466.47 seconds

LAPACK VERSION 2.0, released September 30, 1994

LAPACK timing, COMPLEX*16 band matrices

M:	1000				
N:	25	50	100	150	200
K:	1	2	16	100	
NB:	1	16	32	48	64
NX:	0	48	128	128	128
LDA:	602				

The minimum time a subroutine will be timed = .000 seconds

>>>>> Sample BLAS <<<<<

*** Speed of ZGBMV in megaflops ***
with LDA = 602

K	25	50	100	150	200
M					
1000	51.4	55.3	56.0	56.7	56.8

*** Speed of ZGEMM in megaflops ***
with LDA = 602

K	25	50	100	150	200
	.0	50.0	42.1	40.9	40.8

>>>>> Timing data <<<<<

*** Speed of ZGBTRF in megaflops ***
with LDA = 602

ZGBTRF with M = 1000

K / NB	25	50	100	150	200
1	39.9	38.9	36.5	39.0	41.7
16	26.1	34.1	38.4	36.2	36.7
32	42.0	28.0	35.2	34.7	35.5
48	41.8	29.4	31.7	33.7	33.5
64	40.9	38.6	30.1	31.2	33.4

*** Speed of ZGBTRS in megaflops ***
with LDA = 602

ZGBTRS with M = 1000

K / NRHS	25	50	100	150	200
1	29.7	38.5	36.7	35.0	40.0
2	29.7	38.5	36.7	45.1	38.1
16	32.7	40.2	37.9	39.1	39.1
100	32.1	34.9	37.2	38.2	38.6

*** Speed of ZPBTRF in megaflops ***

ZPBTRF with M = 1000, UPLO = 'U'

K / NB	25	50	100	150	200
1	38.7	48.4	35.8	17.4	11.2
16	18.1	23.6	29.9	28.3	26.5
32	54.2	20.7	25.2	27.3	26.3
48	54.2	19.2	23.3	26.3	27.7
64	45.2	18.5	25.3	26.0	28.7

ZPBTRF with M = 1000, UPLO = 'L'

K / NB	25	50	100	150	200

*** Speed of ZGEMM in megaflops ***
with LDA = 602

K	25	50	100	150	200
	.0	50.0	57.1	57.4	59.3

>>>>> Timing data <<<<<

*** Speed of ZGBTRF in megaflops ***
with LDA = 602

ZGBTRF with M = 1000

K / NB	25	50	100	150	200
1	61.8	62.4	48.0	49.4	49.8
16	38.2	47.1	53.6	56.4	57.1
32	61.5	43.5	50.9	52.9	51.6
48	62.3	42.5	48.9	49.0	49.4
64	63.9	68.0	44.5	46.6	48.4

*** Speed of ZGBTRS in megaflops ***
with LDA = 602

ZGBTRS with M = 1000

K / NRHS	25	50	100	150	200
1	29.7	57.8	55.1	52.6	57.2
2	39.5	46.2	55.1	57.3	57.2
16	50.0	54.4	55.1	52.6	52.5
100	50.3	49.4	49.7	51.0	51.5

*** Speed of ZPBTRF in megaflops ***

ZPBTRF with M = 1000, UPLO = 'U'

K / NB	25	50	100	150	200
1	67.7	63.5	55.5	52.5	52.4
16	27.1	35.0	41.1	44.3	45.3
32	45.2	28.2	38.3	39.4	39.7
48	54.2	27.4	37.9	40.0	39.7
64	67.7	28.2	38.3	39.6	39.7

ZPBTRF with M = 1000, UPLO = 'L'

K / NB	25	50	100	150	200

1	45.2	46.2	45.0	42.4	41.7
16	22.6	29.0	38.3	40.4	39.0
32	45.2	25.4	33.9	35.3	36.5
48	33.9	24.2	33.6	34.5	35.8
64	54.2	26.0	31.1	34.7	37.1

*** Speed of ZPBTRS in megaflops ***

ZPBTRS with M = 1000, UPLO = 'U'

K NRHS	25	50	100	150	200
1	20.3	26.4	30.6	27.9	41.3
2	27.1	26.4	34.0	29.7	36.1
16	25.0	29.5	34.5	35.0	37.0
100	25.1	31.5	33.5	34.0	35.5

ZPBTRS with M = 1000, UPLO = 'L'

K NRHS	25	50	100	150	200
1	20.3	39.6	38.3	37.2	36.1
2	27.1	31.7	34.0	34.3	36.1
16	25.0	30.2	35.0	34.0	35.8
100	25.9	29.8	33.9	34.6	35.8

*** Speed of ZTBTRS in megaflops ***
with LDA = 602

ZTBTRS with M = 1000, UPLO = 'U'

K NRHS	25	50	100	150	200
1	20.3	39.6	76.6	37.2	36.1
2	13.6	19.8	30.6	37.2	41.3
16	25.0	31.7	35.0	37.2	37.9
100	24.8	30.9	34.5	37.6	38.0

ZTBTRS with M = 1000, UPLO = 'L'

K NRHS	25	50	100	150	200
1	.0	39.6	38.3	37.2	48.2
2	20.3	39.6	30.6	37.2	41.3
16	29.6	33.3	36.0	35.7	38.5
100	26.4	31.7	35.3	35.4	36.0

End of tests
Total time used = 332.66 seconds

1	90.3	84.6	55.5	52.1	53.2
16	27.1	42.3	50.4	52.8	54.0
32	90.3	33.8	44.0	48.4	50.1
48	90.3	33.8	43.5	48.7	50.5
64	90.3	32.8	43.5	48.4	50.0

*** Speed of ZPBTRS in megaflops ***

ZPBTRS with M = 1000, UPLO = 'U'

K NRHS	25	50	100	150	200
1	40.7	39.6	51.0	44.6	48.2
2	40.7	39.6	51.0	49.6	48.2
16	38.3	43.7	46.2	47.6	47.7
100	38.0	43.5	46.0	47.3	47.8

ZPBTRS with M = 1000, UPLO = 'L'

K NRHS	25	50	100	150	200
1	40.7	39.6	38.3	44.6	48.2
2	40.7	52.8	51.0	49.6	48.2
16	38.3	45.2	48.0	48.9	49.2
100	39.5	45.0	48.3	49.2	50.2

*** Speed of ZTBTRS in megaflops ***
with LDA = 602

ZTBTRS with M = 1000, UPLO = 'U'

K NRHS	25	50	100	150	200
1	.0	.0	76.6	55.8	72.3
2	40.7	79.2	51.0	55.8	57.8
16	36.2	45.2	51.0	52.5	52.6
100	37.0	44.5	49.7	51.4	52.6

ZTBTRS with M = 1000, UPLO = 'L'

K NRHS	25	50	100	150	200
1	.0	39.6	38.3	55.8	48.2
2	40.7	39.6	51.0	55.8	48.2
16	36.2	45.2	51.0	52.5	53.8
100	39.1	45.5	52.4	53.1	54.1

End of tests
Total time used = 227.07 seconds

LAPACK VERSION 1.1, released March 31, 1993

LAPACK timing, COMPLEX*16 rectangular matrices

M:	100	200	100	200	400	200	400
N:	100	100	200	200	200	400	400
K:	1	2	16	100			
NB:	1	16	32	48	64		
NX:	0	48	128	128	128		
LDA:	401						

The minimum time a subroutine will be timed = .000 seconds

>>>>> Timing data <<<<<

*** Speed of ZGEQRF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		30.2	33.7	34.8	37.8	38.2	37.1	38.8
(16, 48)		36.2	33.7	37.7	35.3	36.8	35.5	35.9
(32, 128)		32.0	36.5	38.8	33.1	36.6	34.3	35.1
(48, 128)		34.0	36.5	33.9	32.1	35.2	32.8	33.7
(64, 128)		41.8	39.7	32.3	30.3	33.9	31.4	33.6

*** Speed of ZUNGQR in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		38.5	39.3	41.5	39.0	37.7	39.7	39.5
(16, 48)		33.7	36.1	35.9	35.5	36.0	37.0	36.1
(32, 128)		38.5	38.2	41.5	32.5	36.6	34.3	35.5
(48, 128)		38.5	43.1	31.7	33.3	35.1	34.6	34.5
(64, 128)		35.9	38.2	31.7	30.4	33.6	33.3	34.0

*** Speed of ZUNMQR in megaflops ***

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	12.1	32.3	32.1	32.1
16		8.1	8.0	8.1	5.7	7.1
32		2.7	4.0	4.0	4.2	3.6
48		2.0	2.2	2.3	2.8	2.4
64		2.0	2.2	1.9	2.0	1.8

LAPACK VERSION 2.0, released September 30, 1994

LAPACK timing, COMPLEX*16 rectangular matrices

M:	100	200	100	200	400	200	400
N:	100	100	200	200	200	400	400
K:	1	2	16	100			
NB:	1	16	32	48	64		
NX:	0	48	128	128	128		
LDA:	401						

The minimum time a subroutine will be timed = .000 seconds

>>>>> Timing data <<<<<

*** Speed of ZGEQRF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		45.3	48.2	48.5	48.4	48.3	48.0	48.5
(16, 48)		49.4	51.9	48.5	50.1	48.1	49.6	48.4
(32, 128)		54.4	48.2	46.8	47.3	47.1	47.2	46.7
(48, 128)		45.3	50.0	48.5	44.9	46.1	46.2	46.2
(64, 128)		49.4	48.2	48.5	42.6	44.3	44.1	44.5

*** Speed of ZUNGQR in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		49.0	49.5	49.0	49.3	49.5	47.1	48.8
(16, 48)		49.0	51.4	49.0	49.9	49.2	49.9	48.6
(32, 128)		49.0	51.4	53.9	47.1	47.7	47.1	47.1
(48, 128)		44.9	51.4	53.9	45.2	46.6	45.2	45.9
(64, 128)		53.9	49.5	53.9	42.1	44.5	42.1	43.8

*** Speed of ZUNMQR in megaflops ***

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	24.1	32.3	48.1	42.9
16		8.1	12.1	8.1	10.7	10.7
32		8.1	6.0	5.4	5.1	5.1
48		2.7	3.4	3.6	3.2	3.4
64		2.7	3.0	2.3	2.7	2.6

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		16.3	24.1	64.6	38.5	42.9
16		8.1	12.1	16.1	13.8	12.2
32		8.1	6.9	6.5	7.1	6.6
48		4.1	4.8	5.0	5.3	4.9
64		2.7	4.0	3.1	4.1	3.6

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		43.4	48.3	43.0	35.8	42.0
16		26.0	32.2	30.4	27.5	30.2
32		21.7	25.7	23.5	24.5	24.2
48		21.7	21.5	19.1	20.8	20.4
64		14.5	18.4	16.7	17.5	17.9

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		35.4	38.3	38.4	38.4	37.6
16		35.4	36.6	36.7	35.7	35.8
32		30.1	32.2	33.3	33.2	34.1
48		25.4	34.5	29.3	34.3	32.1
64		25.4	29.8	26.9	30.7	30.0

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	32.3	48.1	32.1
16		8.1	8.0	6.5	8.0	6.8
32		4.1	4.0	3.6	3.9	3.8
48		2.0	2.4	2.7	2.7	2.4
64		1.6	2.0	1.9	2.1	1.9

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		16.3	48.3	21.5	38.5	42.9

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	48.3	64.6	64.2	64.3
16		16.3	16.1	16.1	17.5	17.1
32		8.1	9.7	10.8	9.6	9.5
48		5.4	8.0	6.5	6.6	6.4
64		5.4	5.4	5.0	4.8	4.9

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		65.1	64.4	64.6	53.1	55.6
16		32.6	48.3	43.0	40.5	42.0
32		32.6	32.2	36.9	31.4	32.7
48		26.0	29.7	27.2	26.6	27.1
64		26.0	25.7	23.5	23.7	23.4

ZUNMQR with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		50.9	51.4	49.7	48.9	48.9
16		45.2	52.5	47.5	47.4	48.1
32		45.2	45.5	44.2	45.6	45.6
48		40.7	43.1	41.4	43.8	43.4
64		38.8	41.6	38.4	41.5	40.3

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		8.1	24.1	32.3	48.1	64.3
16		8.1	12.1	10.8	10.7	9.9
32		4.1	6.0	5.4	5.3	5.1
48		4.1	3.0	3.2	3.6	3.5
64		2.0	2.7	2.3	2.8	2.5

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	48.3	64.6	48.1	64.3

16	16.3	12.1	9.2	11.3	12.2
32	5.4	6.9	7.2	7.7	6.6
48	4.1	4.8	5.0	4.7	4.8
64	3.3	4.4	3.6	3.8	3.8

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 16

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	43.4	42.9	39.7	39.5	39.6
16	32.6	29.7	28.7	28.5	31.2
32	18.6	27.6	23.5	24.5	24.8
48	18.6	21.5	19.1	21.1	20.4
64	16.3	19.3	15.7	17.5	18.5

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 100

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	33.9	40.9	40.9	39.8	37.7
16	33.9	38.9	36.3	36.1	36.1
32	29.1	35.0	34.0	33.7	33.4
48	26.3	32.2	29.6	33.1	31.5
64	26.3	30.6	28.1	31.4	30.5

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 1

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	11.1	11.0	11.1	8.8	9.8
16	11.1	6.6	7.4	6.3	6.3
32	3.7	4.7	4.0	4.1	4.1
48	2.8	2.8	3.2	3.1	3.1
64	2.2	2.5	2.2	2.5	2.5

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 2

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	19.1	19.1	13.4	15.2
16	19.2	11.4	9.5	9.5	10.5
32	9.6	5.7	6.4	6.5	6.6
48	3.8	5.2	5.9	5.1	5.1
64	4.8	4.8	4.5	3.8	3.7

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 16

16	16.3	24.1	21.5	17.5	17.1
32	16.3	9.7	10.8	9.6	9.2
48	5.4	6.9	6.5	6.4	6.4
64	4.1	4.8	4.3	5.2	4.9

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 16

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	65.1	96.6	73.8	55.0	57.1
16	43.4	42.9	43.0	39.5	42.0
32	32.6	32.2	34.4	32.8	33.7
48	26.0	25.7	27.2	27.0	27.4
64	21.7	27.6	22.5	24.5	23.6

ZUNMQR with SIDE = 'L', TRANS = 'C', N = 100

M	100	200	200	400	400
K	100	100	200	200	400
NB					
1	58.1	48.3	48.9	48.9	48.9
16	45.2	48.3	48.2	48.6	48.3
32	40.7	43.9	43.0	45.0	45.6
48	40.7	43.1	40.9	43.2	43.0
64	37.0	40.2	38.0	41.5	40.8

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 1

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	33.1	22.1	33.1	29.4
16	11.1	11.0	11.1	10.2	11.8
32	5.6	6.6	6.3	6.6	6.3
48	5.6	3.7	4.4	4.4	4.4
64	3.7	4.1	3.7	3.4	3.3

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 2

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	57.2	38.2	32.6	50.8
16	19.2	19.1	19.1	16.3	17.9
32	9.6	11.4	10.9	10.4	10.2
48	9.6	5.7	7.6	7.1	7.3
64	4.8	6.4	5.1	5.6	5.5

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 16

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	33.1	32.9	35.1	29.2	32.3
16	33.1	30.3	26.3	28.6	29.6
32	22.1	23.2	23.9	24.2	24.4
48	18.9	20.8	18.2	20.4	20.0
64	14.7	18.8	17.0	16.4	17.2

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 100

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	42.7	39.0	39.4	39.6	40.6
16	38.6	39.6	38.9	39.2	39.5
32	35.3	35.0	33.6	34.7	34.9
48	29.0	33.1	32.0	34.3	33.2
64	28.0	31.4	29.3	32.6	29.6

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 1

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	5.6	11.0	14.7	8.8	9.3
16	5.6	6.6	5.5	5.7	6.3
32	3.7	4.7	4.0	3.8	4.6
48	2.2	3.3	3.2	3.1	2.9
64	2.2	2.8	2.3	2.4	2.4

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 2

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	.0	19.1	15.3	11.4	16.0
16	9.6	11.4	10.9	8.8	9.8
32	6.4	7.1	6.9	6.5	6.6
48	6.4	5.2	4.8	4.9	5.3
64	3.8	4.1	3.6	3.9	4.1

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 16

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	44.1	32.9	35.1	30.3	34.4
16	33.1	28.2	27.7	27.1	29.6
32	26.5	24.6	25.1	23.5	24.2
48	18.9	19.7	22.9	20.2	20.6
64	18.9	18.8	15.5	16.4	15.9

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	66.2	65.7	58.5	47.7	51.2
16	33.1	39.4	47.9	41.4	42.9
32	26.5	35.8	37.6	32.1	35.0
48	26.5	30.3	27.7	27.1	28.8
64	22.1	28.2	21.9	23.2	24.7

ZUNMQR with SIDE = 'R', TRANS = 'N', M = 100

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	67.6	52.5	53.8	54.5	55.0
16	57.9	57.5	54.7	56.8	56.7
32	42.7	53.7	51.2	52.2	52.6
48	47.7	46.5	44.8	48.0	47.5
64	40.6	44.8	40.4	45.7	44.6

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 1

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	11.1	33.1	44.2	26.4	35.3
16	11.1	11.0	11.1	13.2	11.0
32	5.6	8.3	7.4	6.3	6.3
48	2.8	4.1	4.0	4.6	4.4
64	3.7	4.1	3.4	3.6	3.3

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 2

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	19.2	28.6	38.2	38.1	38.1
16	19.2	14.3	15.3	17.6	17.9
32	19.2	11.4	9.5	10.9	10.5
48	6.4	6.4	8.5	7.1	7.3
64	6.4	5.2	5.9	6.0	5.5

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 16

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	66.2	49.3	58.5	47.7	50.0
16	44.1	49.3	47.9	42.6	42.9
32	33.1	35.8	32.9	36.6	35.0
48	22.1	28.2	31.0	27.1	28.8
64	26.5	28.2	25.1	22.5	24.4

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 100

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	40.6	40.3	40.4	39.9	41.0
16	40.6	39.6	39.4	38.6	42.1
32	32.4	34.0	34.7	34.0	33.9
48	30.0	31.8	32.3	34.6	33.4
64	29.0	31.8	29.1	31.9	31.5

*** Speed of ZGELQF in megaflops ***

M	100	200	100	200	400	200	400
N	100	100	200	200	200	400	400
(NB, NX)							
(1, 0)	38.8	38.6	32.3	41.8	42.4	36.6	39.9
(16, 48)	36.2	35.6	31.5	36.2	37.4	34.0	35.7
(32, 128)	32.0	41.0	33.9	32.9	36.5	30.8	34.8
(48, 128)	36.2	37.5	34.8	33.1	36.3	31.8	34.9
(64, 128)	36.2	41.0	37.7	30.5	34.4	30.0	32.8

*** Speed of ZUNGLQ in megaflops ***

K = min(M,N)

M	100	200	100	200	400	200	400
N	100	100	200	200	200	400	400
(NB, NX)							
(1, 0)	38.5	33.7	33.6	39.7	39.0	36.9	41.4
(16, 48)	49.0	33.7	34.4	35.8	32.0	34.1	36.0
(32, 128)	41.5	44.9	36.3	33.8	34.3	33.8	34.7
(48, 128)	49.0	36.0	38.4	33.0	32.8	32.6	35.0
(64, 128)	36.0	31.7	39.5	30.0	31.1	29.4	34.2

*** Speed of ZUNMLQ in megaflops ***

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	4.1	8.0	6.5	4.4	4.9
16	8.1	3.0	3.6	2.8	2.7
32	2.7	2.4	2.7	2.0	2.2
48	2.0	2.0	1.9	1.8	1.8
64	1.6	1.6	1.5	1.6	1.6

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 2

ZUNMQR with SIDE = 'R', TRANS = 'C', M = 100

N	100	200	200	400	400
K	100	100	200	200	400
NB					
1	50.7	51.4	55.7	54.2	55.0
16	54.1	59.0	54.7	56.8	57.0
32	47.7	52.5	52.9	52.7	52.6
48	40.6	48.3	44.2	47.3	47.7
64	38.6	43.9	41.4	45.1	44.4

*** Speed of ZGELQF in megaflops ***

M	100	200	100	200	400	200	400
N	100	100	200	200	200	400	400
(NB, NX)							
(1, 0)	60.4	54.1	52.1	53.8	55.1	52.5	54.4
(16, 48)	49.4	52.0	52.1	55.2	55.4	54.0	55.9
(32, 128)	60.4	56.3	52.1	51.9	54.0	51.2	53.6
(48, 128)	54.4	54.1	50.2	48.9	52.1	49.1	52.0
(64, 128)	60.4	54.1	52.1	46.3	49.7	46.8	50.7

*** Speed of ZUNGLQ in megaflops ***

K = min(M,N)

M	100	200	100	200	400	200	400
N	100	100	200	200	200	400	400
(NB, NX)							
(1, 0)	59.9	59.9	53.7	54.3	54.3	52.7	54.6
(16, 48)	53.9	53.9	51.7	55.7	55.0	54.9	56.0
(32, 128)	59.9	53.9	53.7	52.3	51.7	51.7	53.3
(48, 128)	59.9	59.9	51.7	50.5	49.3	49.3	51.5
(64, 128)	59.9	53.9	53.7	46.1	46.1	47.2	50.2

*** Speed of ZUNMLQ in megaflops ***

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	24.1	32.3	32.1	32.1
16	8.1	12.1	8.1	7.4	8.6
32	4.1	4.8	4.6	4.6	4.6
48	4.1	4.0	3.6	3.4	3.4
64	2.7	3.0	2.5	2.8	2.6

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		16.3	8.0	10.8	5.7	6.0
16		5.4	6.0	6.5	4.6	4.9
32		4.1	4.4	3.6	4.3	3.5
48		5.4	3.7	3.8	3.3	3.3
64		3.3	2.8	3.1	2.8	2.8

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		43.4	12.9	15.2	7.9	8.1
16		21.7	13.3	15.2	10.3	10.8
32		18.6	14.3	14.3	9.5	10.3
48		21.7	12.9	12.9	10.1	9.0
64		14.5	12.1	13.2	9.2	10.2

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 100

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		27.1	13.1	14.1	8.6	8.6
16		27.1	17.4	19.0	12.5	12.5
32		28.1	17.1	18.9	13.0	13.2
48		25.4	17.1	19.2	12.7	13.3
64		23.9	17.6	19.9	13.2	14.5

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	4.8	10.8	4.4	4.6
16		4.1	3.4	4.0	2.8	2.7
32		4.1	2.7	2.5	2.1	2.1
48		2.0	1.9	2.0	1.7	1.8
64		2.0	1.4	1.5	1.5	1.5

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		16.3	9.7	12.9	6.4	6.3
16		8.1	5.4	7.2	4.7	4.5
32		8.1	4.4	4.6	3.6	3.4
48		5.4	3.4	3.4	3.2	3.1
64		3.3	2.8	3.1	2.7	2.6

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		16.3	48.3	64.6	38.5	42.9
16		8.1	16.1	16.1	12.8	13.5
32		8.1	9.7	9.2	8.4	8.6
48		5.4	6.9	6.5	6.4	6.4
64		5.4	5.4	5.0	5.1	4.9

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		65.1	64.4	64.6	44.0	49.0
16		43.4	38.6	39.7	32.1	33.7
32		26.0	32.2	32.3	28.0	28.2
48		26.0	25.7	25.8	24.5	25.1
64		21.7	24.1	22.5	22.0	22.1

ZUNMLQ with SIDE = 'L', TRANS = 'N', N = 100

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		47.9	48.3	48.9	44.8	45.6
16		42.8	43.9	43.6	38.4	40.0
32		40.7	40.2	39.9	38.4	38.6
48		38.8	38.3	38.0	37.6	37.9
64		37.0	38.9	36.3	36.7	36.5

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	.0	32.3	32.1	32.1
16		8.1	8.0	8.1	7.4	7.6
32		8.1	6.0	5.4	4.6	4.6
48		2.7	3.4	3.2	3.4	3.4
64		2.7	3.0	2.7	2.8	2.7

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	24.1	32.3	48.1	42.9
16		16.3	16.1	12.9	12.8	12.9
32		8.1	8.0	8.1	8.8	8.3
48		8.1	6.9	6.5	6.4	6.1
64		4.1	6.0	4.6	5.2	5.0

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	32.6	11.7	13.6	8.1	8.2
16	26.0	14.9	15.2	10.3	10.2
32	21.7	13.3	14.3	10.1	10.2
48	16.3	12.5	13.6	9.5	8.9
64	16.3	12.1	12.6	9.5	9.8

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	29.1	12.6	14.6	8.4	8.6
16	27.1	16.5	19.2	12.2	12.8
32	27.1	17.5	18.9	12.8	13.1
48	24.7	17.1	19.2	12.7	14.0
64	23.9	17.4	19.6	13.5	14.6

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	5.6	4.7	4.0	3.6	3.9
16	5.6	3.3	4.0	3.1	3.3
32	3.7	3.3	3.2	2.4	2.6
48	2.8	2.2	2.5	2.3	2.1
64	2.8	2.2	1.9	1.9	1.8

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	19.2	6.4	7.6	6.3	6.3
16	6.4	5.7	6.4	5.0	5.3
32	4.8	4.8	4.8	4.2	4.4
48	3.8	4.4	3.8	3.7	3.4
64	3.2	3.8	3.3	3.2	2.9

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	33.1	20.8	23.9	22.5	22.6

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 16

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	65.1	64.4	57.4	45.3	47.8
16	32.6	38.6	39.7	31.4	33.2
32	32.6	29.7	30.4	27.5	28.6
48	26.0	27.6	25.8	24.8	24.8
64	21.7	25.7	22.5	22.3	22.1

ZUNMLQ with SIDE = 'L', TRANS = 'C', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	50.9	48.3	48.2	44.6	45.9
16	42.8	43.1	43.6	38.4	39.8
32	40.7	39.6	39.9	38.4	38.8
48	37.0	38.3	38.4	37.6	37.7
64	37.0	37.7	35.9	36.7	36.5

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	16.6	22.1	9.4	11.8
16	11.1	8.3	8.8	7.3	8.0
32	5.6	6.6	5.5	5.3	5.3
48	5.6	4.1	4.4	4.1	4.1
64	3.7	3.7	3.4	3.3	3.3

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	28.6	38.2	14.3	17.9
16	9.6	14.3	15.3	11.4	12.2
32	9.6	9.5	9.5	8.5	8.7
48	6.4	7.1	6.9	6.7	6.8
64	4.8	6.4	5.9	5.6	5.5

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	66.2	49.3	52.7	35.0	38.2

16	26.5	21.9	23.9	20.7	20.2
32	22.1	20.8	19.5	18.1	19.3
48	18.9	17.9	17.0	16.6	16.2
64	18.9	19.7	14.2	14.7	14.2

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 100

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		36.9	35.0	37.5	36.8	37.0
16		32.4	35.5	37.1	36.0	36.4
32		32.4	31.8	32.9	34.5	33.5
48		31.2	31.8	30.5	32.0	31.6
64		28.0	29.5	29.1	30.9	29.7

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 1

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		11.1	4.7	4.9	3.8	3.8
16		5.6	3.7	3.7	3.1	3.2
32		3.7	2.8	2.9	2.4	2.7
48		2.8	2.2	2.8	2.2	2.3
64		2.2	2.4	1.9	1.8	1.8

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 2

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		9.6	6.4	8.5	6.3	6.3
16		9.6	5.7	6.4	5.6	4.8
32		6.4	4.4	5.1	4.3	4.4
48		3.8	3.8	4.0	3.6	3.7
64		3.8	3.8	3.5	3.2	3.0

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 16

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		33.1	20.8	23.9	22.8	22.1
16		22.1	20.8	23.9	21.3	20.6
32		18.9	17.9	20.3	19.0	19.3
48		18.9	18.8	17.6	16.2	16.4
64		16.5	16.4	15.5	15.3	14.5

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 100

16	44.1	43.8	43.9	36.6	37.5
32	33.1	35.8	32.9	30.9	31.8
48	26.5	28.2	29.3	27.1	27.3
64	22.1	28.2	25.1	24.2	24.2

ZUNMLQ with SIDE = 'R', TRANS = 'N', M = 100

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		57.9	52.5	52.9	49.8	50.3
16		54.1	54.9	54.7	55.2	54.8
32		47.7	52.5	50.4	52.2	51.3
48		40.6	47.4	45.5	48.5	47.4
64		40.6	45.6	41.9	44.7	44.6

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 1

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		11.1	33.1	44.2	10.2	11.8
16		11.1	11.0	8.8	7.3	8.4
32		5.6	6.6	7.4	5.3	5.3
48		3.7	4.7	4.4	4.1	4.1
64		3.7	4.1	3.4	3.4	3.3

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 2

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		19.2	28.6	38.2	15.2	16.9
16		19.2	14.3	15.3	12.0	12.7
32		9.6	9.5	9.5	8.5	8.7
48		6.4	8.2	7.6	6.7	6.9
64		6.4	6.4	5.5	5.6	5.5

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 16

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		66.2	65.7	52.7	34.2	38.2
16		33.1	39.4	47.9	37.5	38.2
32		26.5	35.8	35.1	30.9	31.8
48		26.5	30.3	27.7	27.1	27.3
64		26.5	26.3	23.9	23.9	24.2

ZUNMLQ with SIDE = 'R', TRANS = 'C', M = 100

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		36.9	36.6	37.1	37.1	37.2
16		36.9	35.0	37.1	37.9	36.7
32		32.4	32.7	32.0	35.0	34.0
48		27.0	31.0	31.3	31.4	31.6
64		28.0	32.2	28.8	30.3	30.4

*** Speed of ZGEQLF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		36.2	36.5	36.7	38.8	38.9	37.5	38.4
(16, 48)		36.2	35.5	33.9	38.8	34.1	35.6	37.0
(32, 128)		36.2	37.5	36.7	34.2	35.5	31.5	35.6
(48, 128)		38.8	33.7	32.3	32.6	30.6	33.4	33.9
(64, 128)		36.2	37.5	35.7	31.0	29.0	32.2	33.2

*** Speed of ZUNGQL in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		27.0	37.1	38.5	39.7	39.3	37.3	38.9
(16, 48)		38.5	33.4	41.5	35.5	34.8	34.6	36.0
(32, 128)		35.9	36.1	44.9	34.3	37.5	34.6	35.1
(48, 128)		35.9	41.8	31.7	32.8	33.2	33.0	34.4
(64, 128)		38.5	39.3	38.5	30.6	32.0	31.3	32.7

*** Speed of ZUNMQL in megaflops ***

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	24.1	32.3	32.1	32.1
16		8.1	4.8	6.5	7.4	7.1
32		4.1	4.8	3.2	4.0	3.7
48		2.0	2.7	2.5	2.6	2.7
64		2.7	2.2	1.9	2.2	2.0

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	48.3	64.6	38.5	42.9

	K	100	100	200	200	400
	N	100	200	200	400	400
NB						
1		54.1	52.5	53.8	49.8	50.5
16		50.7	54.9	55.7	54.8	55.3
32		45.1	52.5	50.4	51.9	51.3
48		40.6	47.4	45.5	48.0	47.2
64		40.6	46.5	42.5	46.0	44.7

*** Speed of ZGEQLF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		49.4	48.2	48.5	48.9	48.6	47.6	48.4
(16, 48)		49.4	48.2	46.8	48.9	48.3	49.6	49.0
(32, 128)		54.4	50.0	46.8	47.3	47.1	47.4	48.1
(48, 128)		49.4	48.2	48.5	45.3	45.9	45.8	46.7
(64, 128)		49.4	48.2	48.5	42.6	44.0	44.8	45.4

*** Speed of ZUNGQL in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		49.0	49.5	49.0	48.8	49.5	48.8	48.9
(16, 48)		49.0	49.5	49.0	50.5	48.8	49.9	49.5
(32, 128)		53.9	53.5	53.9	47.1	47.5	47.1	47.9
(48, 128)		53.9	49.5	49.0	45.2	45.5	44.7	46.7
(64, 128)		53.9	49.5	53.9	42.1	44.0	42.9	45.2

*** Speed of ZUNMQL in megaflops ***

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		8.1	.0	32.3	96.3	42.9
16		8.1	12.1	10.8	10.7	10.7
32		8.1	6.0	5.4	5.3	5.4
48		2.7	3.4	3.6	3.6	3.6
64		2.7	3.0	2.7	2.7	2.7

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	64.6	64.2	64.3

16	8.1	12.1	12.9	12.0	12.2
32	5.4	9.7	5.4	8.0	7.6
48	4.1	4.8	5.0	4.9	5.4
64	5.4	4.4	3.6	4.1	4.0

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		43.4	38.6	39.7	37.6	38.1
16		32.6	29.7	30.4	29.6	29.8
32		21.7	25.7	25.8	25.3	25.1
48		21.7	20.3	19.9	19.7	20.8
64		18.6	20.3	17.8	17.7	17.9

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		33.9	39.6	35.9	39.3	38.5
16		37.0	36.0	35.5	35.0	35.1
32		31.3	32.6	32.9	34.4	33.9
48		28.1	30.9	30.2	33.1	31.4
64		27.1	29.4	28.3	30.7	30.2

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	.0	32.3	48.1	32.1
16		8.1	8.0	6.5	7.4	7.1
32		2.7	3.4	3.2	4.2	3.5
48		2.0	2.7	2.5	2.8	2.6
64		1.4	2.2	1.9	2.0	2.1

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		16.3	48.3	32.3	48.1	42.9
16		8.1	12.1	10.8	12.0	12.2
32		8.1	6.9	6.5	7.4	6.8
48		5.4	5.4	4.6	5.7	5.0
64		3.3	4.4	3.4	3.9	4.0

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 16

16	16.3	16.1	16.1	17.5	17.1
32	8.1	9.7	10.8	9.6	9.9
48	5.4	6.9	7.2	6.9	6.8
64	5.4	5.4	4.6	5.2	5.1

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		65.1	55.2	64.6	55.0	57.1
16		43.4	48.3	47.0	41.6	42.0
32		32.6	38.6	36.9	32.8	33.2
48		26.0	27.6	28.7	28.5	27.8
64		26.0	27.6	24.6	24.1	23.9

ZUNMQL with SIDE = 'L', TRANS = 'N', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		50.9	49.3	49.7	47.9	49.1
16		47.9	49.3	48.9	48.1	48.5
32		40.7	45.5	45.5	46.1	45.6
48		38.8	42.4	41.9	43.8	43.3
64		38.8	40.9	38.9	41.7	41.3

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	24.1	32.3	48.1	64.3
16		8.1	12.1	10.8	10.7	9.9
32		4.1	6.0	5.4	5.3	5.4
48		4.1	3.4	3.6	3.6	3.7
64		4.1	3.4	2.7	2.8	2.7

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 2

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		16.3	.0	64.6	64.2	51.4
16		16.3	16.1	16.1	17.5	17.1
32		16.3	9.7	9.2	10.1	9.9
48		8.1	6.9	6.5	6.6	6.8
64		5.4	6.0	5.4	5.2	5.2

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 16

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		43.4	38.6	39.7	38.5	39.6
16		32.6	32.2	30.4	28.5	29.0
32		26.0	24.1	23.5	23.7	23.6
48		16.3	21.5	19.9	20.5	21.2
64		18.6	19.3	17.2	18.6	17.7

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		38.8	37.7	36.3	38.5	38.8
16		33.9	34.5	35.5	35.8	35.0
32		29.1	34.0	32.3	34.0	33.7
48		23.9	31.4	29.6	31.2	31.7
64		31.3	29.4	25.8	31.8	30.5

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		5.6	11.0	14.7	8.8	9.8
16		5.6	8.3	6.3	6.0	6.5
32		2.8	3.7	4.4	4.3	4.0
48		2.8	2.8	3.2	3.0	3.2
64		3.7	2.5	2.2	2.3	2.5

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		19.2	14.3	15.3	13.4	15.2
16		.0	11.4	10.9	10.9	9.8
32		6.4	8.2	7.6	7.4	6.6
48		4.8	4.8	5.1	5.6	5.3
64		4.8	4.8	5.1	4.2	4.0

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		66.2	32.9	31.0	31.5	32.8
16		33.1	32.9	29.3	28.6	27.3
32		33.1	23.2	23.9	24.6	23.3
48		22.1	19.7	20.3	23.2	20.2
64		16.5	20.8	16.5	17.9	17.1

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		65.1	77.2	86.1	55.0	57.1
16		32.6	42.9	43.0	40.5	42.0
32		32.6	35.1	34.4	33.5	33.7
48		26.0	29.7	28.7	28.0	28.2
64		26.0	25.7	22.5	24.1	24.2

ZUNMQL with SIDE = 'L', TRANS = 'C', N = 100

	M	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		50.9	50.3	49.7	48.9	49.1
16		45.2	49.3	48.9	47.9	48.7
32		45.2	45.5	45.5	45.6	45.6
48		40.7	43.1	41.4	43.8	43.3
64		38.8	40.9	38.9	41.9	41.5

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	33.1	44.2	33.1	35.3
16		11.1	11.0	11.1	12.0	11.8
32		5.6	8.3	7.4	6.6	6.8
48		5.6	4.1	4.4	4.6	4.6
64		3.7	4.1	3.4	3.6	3.6

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		19.2	57.2	38.2	45.7	43.5
16		9.6	19.1	19.1	17.6	17.9
32		9.6	11.4	10.9	10.9	10.5
48		9.6	8.2	7.6	7.4	7.6
64		6.4	7.1	5.9	5.9	6.0

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		44.1	65.7	65.8	46.3	50.0
16		44.1	43.8	47.9	43.7	42.9
32		33.1	39.4	37.6	34.2	35.0
48		26.5	30.3	29.3	29.2	29.2
64		26.5	28.2	23.9	25.0	25.0

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		40.6	41.7	40.4	40.4	41.4
16		36.9	38.4	38.4	39.9	39.4
32		31.2	35.5	34.3	33.4	35.9
48		32.4	33.1	32.0	34.0	33.8
64		28.0	31.4	30.7	32.0	31.3

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	16.6	11.1	8.8	9.8
16		5.6	8.3	7.4	6.6	5.7
32		3.7	4.1	4.4	4.3	4.4
48		2.8	3.0	3.2	3.4	3.1
64		2.2	2.8	2.5	2.6	2.5

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		19.2	14.3	15.3	12.7	14.5
16		9.6	14.3	10.9	7.6	9.5
32		6.4	6.4	6.9	6.9	6.8
48		6.4	5.2	5.1	5.6	5.3
64		3.8	4.8	4.2	4.2	4.2

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		44.1	32.9	32.9	30.9	33.9
16		44.1	30.3	29.3	26.7	27.3
32		44.1	24.6	25.1	23.5	25.0
48		22.1	20.8	20.3	21.3	20.4
64		18.9	18.8	16.0	18.7	16.7

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		45.1	41.7	40.9	39.2	39.9

ZUNMQL with SIDE = 'R', TRANS = 'N', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		57.9	54.9	56.6	54.2	55.0
16		54.1	57.5	55.7	57.8	56.7
32		47.7	51.4	50.4	53.3	52.1
48		42.7	48.3	46.1	49.0	48.2
64		40.6	46.5	42.5	46.2	45.2

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 1

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	33.1	22.1	33.1	35.3
16		11.1	11.0	11.1	12.0	11.8
32		11.1	6.6	7.4	6.3	6.5
48		3.7	4.7	4.9	4.7	4.6
64		5.6	4.1	3.7	3.5	3.5

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 2

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		.0	57.2	38.2	45.7	43.5
16		19.2	19.1	15.3	17.6	17.9
32		9.6	11.4	12.7	10.9	10.5
48		6.4	7.1	7.6	7.6	7.6
64		6.4	6.4	5.9	5.9	5.9

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 16

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		66.2	56.3	58.5	47.7	50.0
16		44.1	49.3	43.9	42.6	43.8
32		33.1	35.8	37.6	35.8	35.0
48		26.5	28.2	29.3	29.2	29.2
64		26.5	28.2	25.1	25.0	25.0

ZUNMQL with SIDE = 'R', TRANS = 'C', M = 100

	N	100	200	200	400	400
	K	100	100	200	200	400
NB						
1		57.9	56.2	55.7	54.2	54.6

16	42.7	42.4	38.4	39.9	41.4
32	31.2	36.6	34.7	36.2	35.5
48	27.0	32.2	31.6	32.8	33.6
64	23.2	32.7	30.2	32.0	30.7

*** Speed of ZGERQF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	38.8	39.8	32.3	37.8	41.8	36.0	39.3
(16,	48)	36.2	38.6	23.8	35.0	36.7	32.7	36.6
(32,	128)	54.4	41.0	28.2	31.7	37.4	32.7	35.2
(48,	128)	38.8	39.8	33.9	33.1	35.3	31.3	34.9
(64,	128)	38.8	42.2	33.1	30.3	35.6	31.3	33.4

*** Speed of ZUNGRQ in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	38.5	41.5	34.4	35.8	38.3	38.8	40.8
(16,	48)	38.5	38.5	29.2	35.8	35.5	35.2	37.2
(32,	128)	41.5	41.5	36.3	33.8	34.3	35.8	36.0
(48,	128)	36.0	36.0	36.3	34.9	31.8	32.3	33.9
(64,	128)	41.5	36.0	35.4	31.5	33.3	30.2	34.3

*** Speed of ZUNMRQ in megaflops ***

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	8.1	6.0	6.5	4.0	4.3
16	4.1	3.4	3.6	2.8	2.7
32	2.7	2.2	2.5	2.2	2.1
48	1.6	2.0	1.7	1.8	1.8
64	2.0	1.7	1.6	1.4	1.5

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 2

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	6.9	7.2	5.3	5.6
16	16.3	6.9	5.4	4.0	4.7
32	5.4	4.0	4.3	3.8	3.7
48	4.1	3.0	3.6	3.3	3.2
64	3.3	3.4	3.1	2.7	2.8

16	54.1	56.2	56.6	57.5	56.7
32	47.7	52.5	51.2	53.6	53.0
48	40.6	47.4	45.5	49.2	48.2
64	42.7	46.5	41.9	45.5	45.5

*** Speed of ZGERQF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	54.4	56.3	52.1	53.2	55.1	52.7	54.5
(16,	48)	54.4	54.1	52.1	55.2	55.1	54.0	55.9
(32,	128)	54.4	54.1	50.2	51.9	53.7	51.0	53.6
(48,	128)	54.4	56.3	52.1	49.5	52.4	48.9	52.1
(64,	128)	54.4	56.3	50.2	45.8	47.7	46.4	50.6

*** Speed of ZUNGRQ in megaflops ***

K = min(M,N)

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB,	NX)							
(1,	0)	53.9	53.9	53.7	53.6	54.3	52.5	54.3
(16,	48)	49.0	53.9	51.7	55.0	55.7	54.9	56.0
(32,	128)	59.9	53.9	56.0	51.7	51.7	51.2	53.9
(48,	128)	67.4	53.9	51.7	48.8	49.3	49.3	51.9
(64,	128)	59.9	53.9	51.7	45.6	45.6	46.8	50.5

*** Speed of ZUNMRQ in megaflops ***

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 1

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	24.1	32.3	32.1	32.1
16	4.1	8.0	8.1	9.6	8.0
32	4.1	4.8	5.4	5.1	5.1
48	4.1	3.4	4.0	3.7	3.7
64	4.1	3.4	2.9	2.9	2.9

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 2

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	.0	48.3	32.3	48.1	36.7
16	16.3	16.1	16.1	14.8	14.3
32	16.3	9.7	9.2	9.2	9.2
48	8.1	6.9	6.5	6.6	6.9
64	5.4	6.0	5.4	5.3	5.4

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		26.0	9.2	10.8	7.4	7.9
16		21.7	12.9	14.3	9.0	10.3
32		21.7	12.5	12.6	10.1	10.0
48		16.3	12.1	12.0	9.8	9.8
64		13.0	11.7	11.7	9.1	9.1

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 100

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		23.9	10.4	10.9	7.7	8.4
16		27.1	14.7	15.7	11.0	12.2
32		25.4	15.3	16.6	12.2	12.8
48		23.9	15.9	17.2	12.2	12.9
64		23.9	17.1	17.0	12.3	13.2

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	4.8	6.5	4.4	4.3
16		4.1	3.4	3.2	2.3	2.9
32		4.1	2.7	2.3	2.1	2.2
48		2.0	2.0	2.0	1.7	1.8
64		2.0	1.9	1.5	1.5	1.4

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	6.9	10.8	5.3	6.1
16		5.4	6.0	5.4	4.0	4.8
32		5.4	4.4	4.3	3.7	3.6
48		3.3	3.4	3.4	3.3	3.2
64		4.1	2.7	3.1	2.7	2.7

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		32.6	8.6	11.5	7.1	7.8

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		65.1	64.4	57.4	44.0	46.7
16		43.4	38.6	39.7	31.4	33.2
32		32.6	29.7	32.3	28.5	29.0
48		26.0	27.6	27.2	24.8	25.7
64		21.7	25.7	24.6	23.0	22.9

ZUNMRQ with SIDE = 'L', TRANS = 'N', N = 100

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		50.9	47.3	48.9	44.2	45.3
16		42.8	43.9	43.6	38.4	39.4
32		40.7	39.6	40.4	38.1	38.7
48		37.0	38.3	38.4	37.6	37.8
64		37.0	37.7	36.7	36.6	36.9

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 1

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	24.1	32.3	32.1	32.1
16		8.1	12.1	8.1	8.0	8.0
32		8.1	6.0	4.6	5.1	5.1
48		2.7	4.0	3.6	3.7	3.7
64		2.7	3.4	2.7	2.9	2.9

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 2

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		.0	48.3	64.6	38.5	42.9
16		16.3	16.1	12.9	13.8	13.5
32		8.1	9.7	10.8	8.8	9.5
48		5.4	6.9	7.2	6.9	6.8
64		8.1	6.0	5.4	5.3	5.4

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 16

	K	100	100	200	200	400
	M	100	200	200	400	400
NB						
1		65.1	55.2	57.4	44.0	47.8

16	21.7	12.9	12.6	9.2	10.5
32	18.6	11.7	13.2	10.1	10.1
48	18.6	12.1	12.0	9.9	9.8
64	18.6	11.7	11.0	9.0	9.6

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	21.4	10.8	11.2	7.9	8.5
16	27.1	14.5	15.2	11.4	12.1
32	24.7	15.8	15.6	11.7	12.8
48	25.4	15.5	17.1	11.6	13.1
64	24.7	16.4	17.3	11.9	12.9

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	5.6	4.1	3.7	3.4	3.2
16	5.6	3.3	4.0	3.0	3.0
32	2.8	3.0	2.6	2.7	2.6
48	2.8	2.4	2.3	1.9	2.2
64	2.8	2.4	2.0	1.9	1.9

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	9.6	5.7	6.4	5.3	5.8
16	9.6	5.7	5.5	4.7	5.0
32	9.6	4.8	4.8	3.9	4.3
48	4.8	3.8	3.8	3.5	3.5
64	3.8	3.8	3.1	3.1	3.1

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	33.1	23.2	19.5	20.2	21.2
16	26.5	21.9	21.9	19.4	20.4
32	26.5	19.7	18.8	16.9	17.4
48	16.5	17.9	17.0	16.2	16.8
64	16.5	15.8	15.5	14.7	14.8

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 100

16	32.6	42.9	39.7	32.1	33.2
32	26.0	32.2	32.3	28.5	29.0
48	26.0	27.6	25.8	25.7	26.0
64	26.0	25.7	23.5	22.3	22.9

ZUNMRQ with SIDE = 'L', TRANS = 'C', N = 100

K	100	100	200	200	400
M	100	200	200	400	400
NB					
1	50.9	48.3	48.9	44.6	45.1
16	42.8	43.9	43.6	38.4	39.6
32	40.7	40.2	40.4	38.2	39.1
48	37.0	37.7	38.0	37.5	37.8
64	38.8	37.7	36.7	36.9	36.7

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	11.1	16.6	22.1	8.8	11.0
16	11.1	11.0	8.8	7.8	8.0
32	11.1	6.6	6.3	5.5	5.7
48	3.7	4.7	4.4	4.3	4.4
64	3.7	4.7	3.7	3.5	3.6

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	19.2	28.6	25.5	14.3	16.0
16	19.2	19.1	15.3	12.0	12.7
32	9.6	11.4	10.9	9.1	9.2
48	6.4	8.2	7.6	7.1	7.1
64	9.6	7.1	5.9	5.9	5.9

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	66.2	56.3	52.7	35.0	38.2
16	44.1	43.8	40.5	36.6	38.2
32	33.1	35.8	35.1	31.5	33.4
48	26.5	30.3	29.3	27.6	28.0
64	26.5	30.3	25.1	24.6	25.0

ZUNMRQ with SIDE = 'R', TRANS = 'N', M = 100

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	38.6	36.1	38.9	35.9	36.6
16	35.3	37.2	37.1	37.4	35.4
32	30.0	34.5	31.6	32.4	33.4
48	29.0	32.7	31.0	31.6	32.6
64	27.0	30.6	29.6	30.8	30.4

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	11.1	3.7	4.4	3.4	3.6
16	5.6	3.7	3.7	3.0	2.9
32	3.7	3.0	2.6	2.2	2.6
48	2.2	2.4	2.3	2.1	2.3
64	2.2	2.1	2.0	1.8	1.8

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	19.2	6.4	9.5	5.2	5.5
16	6.4	5.7	5.5	4.8	5.2
32	6.4	4.4	4.8	4.0	4.2
48	4.8	3.8	4.0	3.5	3.7
64	4.8	3.6	3.2	3.2	3.1

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	26.5	18.8	22.9	20.7	21.4
16	26.5	21.9	22.9	19.2	19.8
32	22.1	19.7	19.5	16.9	17.8
48	18.9	15.8	17.6	16.2	16.9
64	18.9	15.8	14.6	14.7	15.2

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 100

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	40.6	36.1	36.3	36.4	36.0
16	35.3	37.2	35.1	37.9	36.3
32	31.2	34.0	32.3	31.0	33.3
48	28.0	32.7	30.5	32.3	31.6
64	28.0	30.2	29.9	31.5	31.6

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	54.1	52.5	52.9	48.0	50.5
16	54.1	54.9	54.7	55.2	54.6
32	47.7	51.4	50.4	52.5	51.7
48	45.1	48.3	46.1	48.5	48.4
64	40.6	46.5	43.6	46.0	45.2

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 1

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	.0	33.1	22.1	9.4	10.4
16	11.1	8.3	11.1	7.3	8.0
32	11.1	6.6	6.3	5.5	5.7
48	5.6	4.7	4.9	4.3	4.4
64	5.6	4.1	3.7	3.6	3.5

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 2

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	19.2	28.6	38.2	13.4	16.0
16	9.6	14.3	15.3	12.0	12.7
32	9.6	9.5	9.5	8.8	9.2
48	6.4	8.2	7.6	7.1	7.3
64	6.4	8.2	6.4	5.9	6.0

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 16

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	66.2	49.3	52.7	34.2	38.2
16	44.1	39.4	43.9	38.4	38.2
32	26.5	32.9	35.1	32.1	32.8
48	26.5	30.3	29.3	27.6	28.4
64	26.5	28.2	25.1	24.6	25.0

ZUNMRQ with SIDE = 'R', TRANS = 'C', M = 100

K	100	100	200	200	400
N	100	200	200	400	400
NB					
1	54.1	52.5	52.9	49.5	50.7
16	50.7	54.9	54.7	55.2	55.0
32	47.7	51.4	50.4	52.5	51.9
48	42.7	47.4	46.8	48.5	47.9
64	38.6	46.5	44.2	46.2	45.2

*** Speed of ZGEQPF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
Type								
2		31.4	34.5	30.4	34.9	37.3	32.7	36.4
3		31.4	32.8	28.6	35.4	35.3	32.3	37.1

*** Speed of ZGEBRD in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		37.2	40.0	34.3	37.0	39.2	36.4	39.5
(16, 48)		29.2	31.5	27.0	29.7	33.7	31.4	34.0
(32, 128)		37.2	40.0	33.5	27.4	32.5	28.7	32.0
(48, 128)		38.5	39.4	32.3	25.3	30.8	26.1	29.3
(64, 128)		36.0	37.7	33.5	22.2	27.6	21.9	26.8

*** Speed of ZUNGBR in megaflops ***

ZUNGBR with VECT = 'Q', N = MIN(M,K)

	M	100	200	100	200	400	200	400
	K	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		44.9	43.1	43.6	38.0	40.8	38.1	38.6
(16, 48)		33.7	37.1	32.7	35.8	37.4	35.5	36.1
(32, 128)		35.9	39.3	37.4	34.3	36.0	34.4	35.8
(48, 128)		35.9	39.3	40.3	34.3	35.0	33.5	34.2
(64, 128)		35.9	39.3	37.4	31.1	33.1	31.8	32.8

ZUNGBR with VECT = 'P', M = MIN(K,N)

	K	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		34.9	40.3	35.4	37.4	40.3	37.7	41.2
(16, 48)		34.9	43.6	32.8	35.8	36.1	34.8	36.8
(32, 128)		40.3	40.3	35.4	34.4	33.8	33.6	36.0
(48, 128)		37.4	37.4	33.6	34.1	32.8	33.1	35.0
(64, 128)		40.3	37.4	35.4	31.5	31.3	31.4	31.9

End of tests
Total time used = 3614.45 seconds

*** Speed of ZGEQPF in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
Type								
2		47.1	44.5	42.1	44.4	45.4	44.2	46.6
3		43.5	43.1	40.9	44.4	45.6	44.1	46.4

*** Speed of ZGEBRD in megaflops ***

	M	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		51.4	52.5	48.7	50.8	51.5	49.4	51.4
(16, 48)		43.2	47.0	44.6	47.7	48.4	48.1	49.6
(32, 128)		54.0	52.5	49.6	44.2	46.8	45.2	47.0
(48, 128)		54.0	51.5	50.5	40.5	44.4	42.7	44.6
(64, 128)		51.4	51.5	50.5	36.4	40.6	38.5	42.1

*** Speed of ZUNGBR in megaflops ***

ZUNGBR with VECT = 'Q', N = MIN(M,K)

	M	100	200	100	200	400	200	400
	K	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		53.9	51.4	52.3	49.9	49.2	49.7	48.8
(16, 48)		49.0	51.4	52.3	49.9	49.0	49.7	49.6
(32, 128)		53.9	51.4	52.3	47.1	47.7	47.0	48.0
(48, 128)		49.0	49.5	52.3	45.2	46.6	45.0	46.7
(64, 128)		53.9	51.4	52.3	42.9	43.8	42.3	44.9

ZUNGBR with VECT = 'P', M = MIN(K,N)

	K	100	200	100	200	400	200	400
	N	100	100	200	200	200	400	400
(NB, NX)								
(1, 0)		58.1	58.1	53.7	54.9	54.2	53.0	54.4
(16, 48)		47.6	47.6	53.7	54.9	55.6	55.2	55.9
(32, 128)		58.1	58.1	53.7	51.5	52.2	51.7	53.5
(48, 128)		58.1	52.3	53.7	48.6	48.6	49.6	51.8
(64, 128)		58.1	58.1	53.7	46.4	45.4	47.0	50.2

End of tests
Total time used = 2352.76 seconds