

Siemens System 7.500

New Product Announcement

Announced 15 months after Siemens introduced the System 7.500 series, four new processor models have been added to the family, making a total of seven. Covering a range from 0.13 to 4.5 million instructions per second, the series encompasses a much wider spectrum than any of its competitors.

Belonging to the compact computer class, the 7.536 is the smallest model of the new additions, fitting in between the existing 7.531 and 7.541. The other three models—the 7.551, the 7.561 and the 7.571—are all more powerful than the existing top-end model, the 7.541. All the models are compatible with each other, using the same 169-instruction set and running under the BS 2000 operating system.

Central to the design of the new processors are the latest Emitter Coupled Logic (ECL) circuitry and 65,536-bit VLSI MOS chips, providing high speed technology in far less space than before.

First deliveries are scheduled as follows: 7.536, first quarter of 1982; 7.551, fourth quarter of 1981; 7.561, first quarter of 1982; and 7.571, first quarter of 1982. Preliminary models built with 16K chips will be available in mid-81.

Originally announced as Siemens' answer to IBM's 4300 Series, the 7.500 now covers the range of both the 4300 and the 303X series.

Users are now questioning the future of the Siemens System 7.700, and it appears that Siemens eventually will replace all 7.700 models with 7.500 equivalents in performance but lower in price. Although still available for BS 1000 users, the 7.700 models are not being actively marketed to new users as the 7.500 models have a far better price/performance ratio. However, users needing more powerful models immediately will be sold the more expensive top-end 7.700 models, which are still being manufactured. Siemens is thus giving BS 1000 users time to convert to the newer and more efficient BS 2000, which runs on both the System 7.500 and System 7.700.

Siemens intends to market the complete 7.500 range in Germany, France, Belgium, the Netherlands, Denmark, Sweden, Italy, Switzerland, Austria, Spain, and South Africa. As the computer market is not homogeneous throughout Europe, the Siemens System 7.500 will be facing different competition from different vendors in the different European countries. However, one competitor that Siemens will always find throughout Europe will be IBM, the industry's leader.

As on previous occasions, Siemens is following its usual marketing strategy by matching models against IBM's. The 7.531 and 7.536 compete directly against IBM's 4331 models 1 and 2, respectively, while the 7.541 competes against the larger 4341. The three new top-end models—the 7.551, the 7.561 and the 7.571—will compete against the IBM 3031, 3032, 3033N and the 3033, respectively. The larger Siemens IBM plug-compatible mainframe System 7.800 series is aimed at existing IBM users.

Siemens' main market is the Federal Republic of Germany where it has a 20.7 percent share of the market. In the other European countries, Siemens' market share ranges from 3 to 15 percent, depending on the country. Taking the whole of Western Europe, Siemens has 10.8 percent. Always conscious of IBM, Siemens intends to increase its market share by attracting potential customers of Honeywell's DPS 7 and DPS 8 series and potential customers of UNIVAC's 1100/60 and 1100/80 series with the newly expanded 7.500 series. As Siemens does not market computers actively in the United Kingdom, ICL computers are not really considered strong competition.

Siemens' strength lies in having one compatible series and one operating system, which facilitates the user migratory path. All its competitors have more than one series and more than one operating system covering the performance range of the System 7.500 models.

RELATIVE PERFORMANCE

Relative performance data is often difficult to obtain. The relative performance figures in the table below will give users an idea of the power of each of the models. Siemens has provided all of the figures and three different relative performance criteria are shown. Row 1 is the relative performance taking the 7.521 as one. Row 2 is the relative performance measure used by International Data Corporation (IDC), where IBM's 370/158-3 equals 45. Row 3 is the number of 1000 "average" operations per second (KOPS).

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Model	7.521	7.531	7.536	7.541	7.551	7.561	7.571
Relative performance							
7.521 = 1	1	2	4	6	9	21	35
370/158-3 = 45	5.8	11	22	33	58	130	220
KOPS	130	240	500	750	1250	2700	4500

CONFIGURATIONS

MODEL 7.536: Unlike the 7.521 and the 7.531 compact computers, which have a desk-like design and an integrated central operator console, the 7.536 is a free standing computer with a separate central operator console like the model 7.541. Nevertheless, it can be used in an office environment. It is also possible to add on three auxiliary consoles. Deliveries are scheduled for the first quarter of 1982. A preliminary version, based on 16K-bit chips, will be available during mid 1981 and will run under version 6.0 and 6.2 of BS 2000. The preliminary version will be housed in two cabinets, while the final version, based on the 64K-bit chips, will take half the space. The final hardware version will run under version 7.0 of BS 2000.

The basic configuration is made up of the central processor with 8K bytes of cache memory, a microprocessor based input/output processor, two megabytes of main memory, a 3026-2 workstation, a service processor with floppy disk drive, a 3336, 600 line-per-minute printer, an integrated terminal controller, a direct disk storage adapter for four disk units (fixed or removable), and one byte multiplexer channel with connections for the operator station, the system printer, and an additional integrated terminal controller with five additional trunk extensions.

There are many options which can be added to the basic 7.536 configuration. The main memory can be expanded from two megabytes to three megabytes. As with the 7.521 and 7.531, the disk drive units connect to the Direct Disk Storage Adapter (DDSA) allowing for a maximum of 16 disk drives, 10 more than on the 7.531. By attaching sixteen 420 megabyte fixed-disk units, one can obtain a maximum capacity of 6720 megabytes of on-line storage.

For long distance teleprocessing, the entire range of BS 2000 Transdata products can be linked to the integrated pre-processor (IVR) as on the 7.531. For short distances, up to 2000 meters, the 7.536 uses the same integrated terminal controller (ITC) as the 7.531, permitting up to 32 display or printer terminals. As an option, two block multiplexer channels can be added. The maximum total data rate for all channels is 6 megabytes per second, the same as on the 7.541 and over three times the rate on the 7.531. The system can also handle up to 20 tape drives and six system printers.

The model 7.536 with two megabytes of main memory, three disk drives of 126 megabytes each, 12 workstations and one 300 line-per-minute printer, rents for DM 17,400 over a 36-month period. The basic software rents for DM 1650 per month.

MODEL 7.551: Competing directly against IBM's 3031 and Honeywell's DPS 7/70, the Siemens System 7.551 must be used in an air-conditioned computer center environment. Similar in architecture to the 7.541, the 7.551 has a larger main memory capacity (up to 8 megabytes), a faster cache memory (80 nanosecond cycle time compared to the 200 nanosecond cycle time on the 7.541), a higher aggregate data rate (16 megabytes per second) and a different input/output channel configuration in terms of the number of byte and block multiplexer channels.

The basic configuration is made up of a central processor with 16K bytes of cache memory and a microprocessor based input/output processor, two megabytes of main memory, a 3026-2 workstation, a service processor with floppy disk drive for diagnosis and maintenance, a 3336 line printer, three block multiplexer channels and one byte multiplexer channel with eight trunks, two of which are taken up by the central operator console and the system printer. The byte and block multiplexer channels each have a data rate of 400K bytes per second and 2000K bytes per second, respectively. Each trunk on the byte multiplexer has a data rate of 280K bytes per second. The main memory can be expanded from the basic two megabytes in two-megabyte modules up to eight megabytes.

The mass storage devices hook up to disk controllers for a maximum of 32 disk units per controller. The disk controllers are connected to the block multiplexer. As there are a maximum of six block multiplexers and each block multiplexer can take one disk controller, the 7.551 can theoretically handle up to 192 disk units for a maximum on-line capacity of 80,640 megabytes. The block multiplexer channel can also address up to 256 devices per channel. A second byte multiplexer with

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eight trunks is offered as an option on the 7.551. The byte multiplexer is used for the slower peripherals. Up to three 3026-10 sub-consoles may also be attached up to 2000 meters away. As with the 7.541, teleprocessing is implemented through the 75519 compact pre-processor and the modular Transdata 960 data communication system. The entire range of BS 2000 Transdata products can be added.

The planned schedule for first deliveries is for the fourth quarter of 1981 with version 7.0 of BS 2000. A preliminary version with different specifications based on 16K chips will be ready in mid 1981. This model will run under version 6.0 and 6.2 of BS 2000. The model 7.551 with four megabytes of main memory, eight disk drives of 420 megabytes each, three tape drives, 600 line-per-minute printer, and 16 workstations, will rent for DM 67,000 per month, including basic software.

MODEL 7.561: Based on a hierarchy of different speed and different size memories as well as two separate input/output processors, the Siemens 7.561 offers more or less the same computing power and features as IBM's 3032, Honeywell's DPS 8/70 mono- and bi-processors and UNIVAC's 1100/82. Siemens also intends to produce bi and multiprocessor configurations of the system in the future. The 32K-byte, 52-nanosecond cache memory is larger and faster than those on the smaller models. Each I/O processor handles up to six block multiplexers and one byte multiplexer. Each byte multiplexer channel has up to eight trunks while each block multiplexer has two for a total of 12 trunks for each I/O processor. The aggregate data rate considering both I/O processors is 28 megabytes per second. Each block multiplexer channel has a maximum data rate of 2 megabytes per second and the data rate of the byte multiplexer is 400K bytes per second, the same as on the other models.

The basic configuration is made up of the central processing unit, a main memory of four megabytes, a cache memory of 32K bytes and one input/output processor with four block multiplexer channels and a byte multiplexer channel. Expansion capabilities include a maximum of eight megabytes of main memory, six block multiplexer channels per I/O processor, and a second I/O processor. The mass storage devices attach to the disk controller, which attaches to the block multiplexer. Theoretically, the 7.561 can handle up to 384 disk drives.

Unlike the 7.551, teleprocessing is implemented through the DVR front-end processor and the modular Transdata 960 data communication system. The entire range of BS 2000 Transdata products can be added.

The typical model 7.561 with four megabytes and peripherals rents for about DM 155,000 per month.

MODEL 7.571: Similar in architecture to the 7.561, the 7.571 is the new top-end model and is as powerful as IBM's 3033 and Siemens' own plug-compatible mainframe, the 7.872.

The main difference to the 7.561 is that the cache is twice the size (64K), and the basic configuration has six block multiplexer channels against the four on the 7.561. Otherwise the 7.571 has similar specifications to the 7.561. Monthly rentals for typical top-end configurations with disk drives, printers, and workstations are around DM 220,000. □

CHARACTERISTICS OF THE SIEMENS SYSTEM 7.500 PROCESSORS

MODEL	7.536	7.551	7.561	7.571
Relative performance (7.521 = 1)	4	9	21	35
CPU cycle time (nanoseconds)	80-120	80-120	52	52
Cache memory				
Size (bytes)	8K	16K	32K	64K
Cycle time (nanoseconds)	80	80	52	52
Main memory				
Minimum size (bytes)	2M	2M	4M	4M
Maximum size (bytes)	3M	8M	8M	8M
Input/output processors	1	1	1 or 2	1 or 2
Aggregate data rate (bytes/sec)	6M	16M	28M	28M
Byte multiplexer channels	1	1-2	1-2	1-2
Data transfer rate (bytes/sec)	400K	400K	400K	400K
Block multiplexer channels	0-2	3-6	4-12	6-12
Data transfer rate (bytes/sec)	2M	2M	2M	2M
Price (monthly, 3-year lease)	DM 11,150	DM 30,100	DM 86,203	DM 127,000