

P E R F O R M A N C E

*By Design*



**STRIDE**  
SERVERS

Electronic Data Systems

# Family of Products

## LOOKING AHEAD

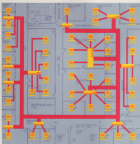
Stride™ Micro. It's a new name that says a lot about who we are: we're committed to micro technology, and we're determined to march at the front of the pack.

That's quite a boast from a brand new computer company just entering its first year. But if you take a closer look, we think you'll soon agree that our claim is not so fanciful.

Stride Micro is actually a new name for a company that's been producing leading super microcomputers since 1981, Sage Computer.

While other manufacturers were just beginning to explore 16-bit processors, Sage was sparking a renaissance of returning microcomputers to leading edge technology. Instead of just following the pack of compatibles, Sage led the way using the 32-bit Motorola 68030 processor and a highly integrated board concept. The result was a superbly designed, high-speed environment with no electronic red tape to slow things down. We produced the best set of benchmarks in the industry.

But our switch to Stride Micro represents more than just a new logo on the side of shipping boxes. It marks the maturation of a team committed to designing advanced microcomputers.



## BUILDING ON SUCCESS

Stride has built on the successful foundation of the Sage II and IV to produce a complete family of advanced microcomputers, while retaining our roots of superior performance at sensitive pricing.

Through attention to detail and careful planning, these new systems incorporate many more features than their predecessors, yet are actually offered at a reduced cost. With our evolution to Stride, we also expand our systems to the exciting worlds of networking, large memories, floating point processing, memory management, battery backup, 10 or 10

MHz operation, huge storage, with tape back-up and expanded multi-user capabilities. In a nutshell, Stride is the only company to explore and capitalize on the full range of the 68030's potential, from beginning to end.

Unlike others in the growing crowd of multiuser systems, Stride is not tied to any single operating system. Not only can you choose from a dozen different OSs, Stride's multi-user BIOS permits you to run many of them simultaneously! It's a feature you'll find nowhere else in the industry, and it's standard on every Stride microcomputer.

The features listed above will dominate the industry in the future, but they are available today from Stride in a price range that micro-users can afford.

At the heart of every Stride 400 Series system is a common CPU based that typifies our philosophy of "Performance By Design™". It is at least two years ahead of the industry in terms of features, speed and economy. It's truly tomorrow's product at an affordable price today.

The entire family is built around the powerful Motorola 68000 microprocessor. An innovative board design permits Stride Micro to run this 16/32-bit chip at its maximum frequency of 10 or 12 MHz to achieve unprecedented processing speed. But that's just the beginning.

Recognizing the importance of networking, the popular Omninet™ hardware is built into every system allowing extreme configuration flexibility and opening the door to growth and expansion. Best of all, Omninet can be installed at a fraction of the cost of competing networks. The hardware is provided at no extra charge and the physical connection is accomplished with inexpensive twisted-pair cables.

Hardware is only half of the network story. All Stride microcomputers include the innovative Liasion™ Networking Operating System. Based on an updated version of the p-System™, Liasion allows networks to take full advantage of distributed processing by use of complete file and device sharing. It retains the p-System's value of portability across different chip architectures, and Liasion is upward compatible with all existing p-System applications.

Selection of the VMEbus™ for all Stride microcomputers is another bold step into tomorrow's technology. This industry standard bus is already widely accepted throughout the world with hundreds of vendors offering compatible products. By IBM, industry sources predict that VMEbus architecture will lead all other board standards.

Perhaps it is in the option list, that the 400 Series really shines. With the addition of Floating Point Processing and Memory Management, Stride systems can now meet the needs of virtually any microcomputer application.

Our FPU (Floating Point Processing unit) option is available on all systems and is based on the highly successful National Semiconductor NS16081 chip. It is an excellent companion to the 68000 and produces outstanding floating point benchmarks (up to 48,000 64-bit multiplies per second). We're confident that Stride will soon become a dominant force among those interested in high-performance number-crunching applications.



Memory Management is also becoming an important topic for programmers in a number of operating environments such as UNIX and Fort. The Stride implementation is a single-stage, paging MMU based on fast translation RAM. It is extremely efficient and has zero wait states. Now Stride will be able to offer its superior price-performance ratio to a whole new audience—those requiring MMU hardware. This option is available on all systems, but is most practical on the 440 and 480 models with larger storage and memory capabilities.

In summary, the Stride Micro 400 Series sets new standards in microcomputer technology. It is the ultimate in "Performance By Design™" with features and options to meet the needs of any user from the office to the laboratory.



## Stride 420

The Stride 420 may well be the most computer an average user will ever need. As a stand alone workstation, it gives big system performance in a small package. With a footprint equivalent to an office ink-basket, the Stride 420 offers up to 1.3M bytes of diskette storage and 512K bytes of RAM.

Incredibly, this machine, with an entry level price below many of the so-called personal computers, has all the standard features of the advanced-800 Series super micro.

The 420 is unique in the industry with compatibility to an entire family of products and the flexibility to be an individual workstation or an integrated element in a distributed network of a larger, more-complex system.

Your configuration possibilities are limited only by your imagination. The unique multiuser, multi-tasking software permits concurrent processing on multiple or single terminals. Regardless of your use, you'll find all the tools needed, from the advanced Liaison Networking Operating Systems to Stride's own utilities that allow user configuration of system components. For example, at the push of a button the floppy can emulate a 40-track IBM or an 80-track, or virtually any other popular setup.



There are still more features here: VMEbus interfacing, on-board Cromemco hardware, telecommunications, a screen-oriented program editor, RAM-DISK, a debugger, comprehensive documentation and much, much more.

With a rich option list that includes floating-point processing, a 12 MHz processor, memory management, a dozen operating systems, 30 compilers, and hundreds of applications, the Stride 420 is today's solution to tomorrow's data processing problems.



## Stride 440

A "developer's dream machine". That's how the programmers are describing the new Stride 440™. End-users see it differently: "It's the first practical multi-user machine".

It's no accident that this machine is being well-received; we planned it that way. We listened to those who were using today's microcomputers. We noted their likes and recorded their complaints. The result was the exceptional-440.

Those pioneering in software development were looking for high processing speed, large RAM arrays, varying hard disk capacities and options like floating point processing and memory management to aid their work in unique operating and language environments such as Modular-2, LISP, UNIX, C, APL, IBM-COS, COBOL, and M02SYS.

Those who put the systems to work in the office or shop wanted practical features such as on-board tape backup, networking, powerful multi-user capabilities, system flexibility, VME interfacing, and application availability.

It's all there with the 440. This machine is nearly identical in size to the IBM PC, but it has the performance characteristics of that company's mainframes. It can serve as a portable desktop station for scientific/engineering calculations or blossom into a 16-port multiuser system.



# Stride 460

networked to 80 other CPUs. With options to 256 bytes of RAM and 32M bytes of Winchester storage, few users will outgrow their Stride 460.

As with every Stride system, performance is the key. There is an all new high-speed disk controller that works in conjunction with a fast Winchester to provide a transfer rate up to 480K bytes per second. The optional on-board streaming 1/2" tape drive can backup more than 5M bytes a minute. And the already fast 8800 processor runs without wait states on the Stride at 10 MHz (12 MHz optional). Whether you're compiling source code or parsing to the general ledger, you'll find the Stride 460 will grant your commands, not the other way around.

This is what "Performance By Design" is all about: building microcomputers to meet the demands of the community at a price they can afford.



Microcomputers have been resting on the threshold of microcomputer performance for the last two years. Now the all new Stride 460 just kicked in the door to a whole new world of power and flexibility.

Others who have tried to bridge this gap between the mini and micro worlds have stumbled by dragging along the old concepts of big system performance rates that will make the big completely pointless.

Best of all, nothing has been left behind: multiple Winchester storage, ample RAM (up to 3M bytes), tape backup, multuser (up to 22 par's), networking, floating point and memory management options, direct VMEbus card-cage interfacing, and vertical tower design.

The 460 will quickly become the standard for developers, OEMs, value-added resellers and end users seeking leading edge performance from a microcomputer environment.

None of the virtues of the 460 series has been sacrificed. This powerful system can still be used for development in dozen operating systems or 30-plus languages. Yet, with upgradeable hard disk storage to an incredible half gigabyte, the 460 can come to the convenience of a networked or multuser system solution, utilizing Stride's standard Liscion LAN software and the

Dimind hardware, the 460 can share its power with a network of smaller, inexpensive terminals or workstations. This combination spreads the microcomputer power of the 460 to a cost-efficient network of less capable microcomputers.

With a built-in VMEbus backplane, up-to-four additional boards can be plugged directly into the 460. There are literally hundreds of VME add-on cards available opening endless possibilities from data acquisition, to graphic devices to hardware interfacing to industrial control.

All this flexibility is underwritten by performance. The optional 3M bytes of RAM opens unlimited opportunities in the use of RAM-Disk for high speed program access. The four Winchester's (optional) are directed by an all new controller that achieves maximum throughput for faster data reads. And finally the microprocessors, from the remarkable 68000 CPU to the PPU 18081, achieve some of the best benchmarks in the industry.

We invite and encourage comparisons, because we're confident that in today's marketplace, there is no question that the Stride 460's "Performance By Design" concepts stand by themselves.



## Specifications

FEATURE	STNOC 420	STNOC 440	STNOC 460
<b>STANDARD PROCESSOR</b>	<ul style="list-style-type: none"> <li>• 10 MHz 68000 microprocessor • 2.5 million operations per second</li> <li>• 32-bit registers • 14 Addressing modes</li> </ul>		
<b>OPTIONAL PROCESSOR</b>	<ul style="list-style-type: none"> <li>• 10 MHz 68000 microprocessor • 3 million operations per second • Zero wait states for CPU memory only • On board memory requires one wait state for an effective yield of 10 MHz • 128 nanosecond CPU RAM is included with option</li> </ul>		
<b>BUS DEFINITION</b>	<ul style="list-style-type: none"> <li>• VMEbus compatible • Bus vectored interrupts • All I/O is optionally potted</li> <li>• Async/monous bus operation • 18-bit data bus</li> <li>• 31-bit address bus (with address RAM/bytes)</li> </ul>		
<b>EXTRA WIRE DATE</b>	• N/A	• N/A	• 2 Euro-Card
<b>MEMORY</b>	<ul style="list-style-type: none"> <li>• 256K bytes of parity RAM is standard on all systems • No wait states for RAM access</li> <li>• 64K bytes of battery backed up-CMOS ROM • 16K bytes of boot-debugger ROM</li> </ul>		
<b>MAXIMUM RAM CAPACITY</b>	• 512K bytes	• 2M bytes	• 3M bytes
<b>MINIHOSTER DISK CAPACITY</b>	• N/A	• 10, 15 and 30M bytes	• 15, 30, 60, 110, 224 and 448M bytes
<b>MINIHOSTER DISK FORM FACTOR</b>	• N/A	<ul style="list-style-type: none"> <li>• Full track addressable buffering</li> <li>• 100 to 400K bytes per second transfer rate</li> </ul>	
<b>FLOPPY DISK</b>	<ul style="list-style-type: none"> <li>• Double-sided, double-density 16 TPI, 5 1/4" Drives • Five sectors interleaving per track skewing required • 640K bytes capacity per drive</li> <li>• First drive is standard, second drive is optional</li> </ul>		
<b>OPTIONAL STREAMING TAPE DRIVE</b>	• N/A	<ul style="list-style-type: none"> <li>• 4.5 or 90M byte tape capacity • Transfer rate of 11 seconds per Mbyte • RAB5 standard K5 95</li> <li>• Q10-Q2 interface • Q10-24 tape format</li> </ul>	
<b>SERIAL PORT DEFINITION</b>	<ul style="list-style-type: none"> <li>• RS-232C with RJ-45C shielded Modular (Phone jacks) • 300 to 28.8K baud</li> <li>• RTS, CTS and CD-supported • Uses Motorola MC68000</li> </ul>		
<b>NUMBER OF SERIAL PORTS</b>	• 4	• 10 to 16	• 10 to 32
<b>STANDARD PARALLEL PORTS</b>	<ul style="list-style-type: none"> <li>• Centronics-compatible parallel printer port</li> <li>• Bi-directional buffering • 8 data bits • 7 control bits</li> </ul>		

FEATURE	STRIDE 420	STRIDE 440	STRIDE 460
<b>STANDARD LAN</b>	<ul style="list-style-type: none"> <li>Standard Dimestral hardware interface • 1 Mpps transfer rate</li> <li>Requires only twisted pair cables • CSMA/CA protocol</li> </ul>		
<b>STANDARD</b>	<ul style="list-style-type: none"> <li>Battery backup • 0.01% accuracy</li> <li>Second, minute, hour, day, month, year</li> </ul>		
<b>OPTIONAL FLOATING POINT UNIT</b>	<ul style="list-style-type: none"> <li>Uses National 16081 and proprietary FAL • All operations on 32- and 64-bit numbers</li> <li>Conforms to IEEE-754 standard • 800 perform 7500 to 48,000 64-bit multiples per second • 17,000 is typical</li> </ul>		
<b>OPTIONAL MEMORY MANAGEMENT UNIT</b>	<ul style="list-style-type: none"> <li>MML is based on single stage fast translation (SAM) • MML address a 3M byte task using 4K byte pages in one of four contexts • Zero wait states for CPU memory</li> </ul>		
<b>STANDARD SOFTWARE</b>	<ul style="list-style-type: none"> <li>Liaison Operating System, g-System I/O w/LAM software, screen-oriented editor, File and Utilities, disk and print Server • Stack configuration utilities</li> <li>ToolTalk communications software</li> </ul>		
<b>STANDARD MULTI-USER MODE</b>	<ul style="list-style-type: none"> <li>Up to 15 users (dependent on RAM capacity and ports)</li> <li>MML can different operating systems concurrently • True concurrent processes</li> <li>Inter-user communication through Liaison</li> </ul>		
<b>STANDARD DOCUMENTATION</b>	<ul style="list-style-type: none"> <li>Stride Owner's Manuals—Volumes I and II</li> <li>Liaison Operating System Manual • Stride Software Directory</li> </ul>		
<b>OPTIONAL OPERATING SYSTEMS</b>	<ul style="list-style-type: none"> <li>CP/M-800 • RM-CCS • UNIX V • Ims • HyperFORTH • PDOS • DOS • Mirage</li> <li>MCSYS • TRIPCS • Mumps</li> </ul>		
<b>OPTIONAL LANGUAGES</b>	<ul style="list-style-type: none"> <li>68000 Assembly • APL • BASIC • C • C-BASIC • COBOL • Fort • FORTRAN</li> <li>LISP • Modula-2 • Mumps • Pascal</li> </ul>		
<b>STANDARD POWER SUPPLY</b>	<ul style="list-style-type: none"> <li>80-watt switching</li> </ul>	<ul style="list-style-type: none"> <li>100-watt switching</li> </ul>	<ul style="list-style-type: none"> <li>150 or 200-watt switching</li> </ul>
<b>PHYSICAL PARAMETERS</b>	<ul style="list-style-type: none"> <li>Height 4.3"</li> <li>Width 12.4"</li> <li>Depth 16.3"</li> <li>Weight 43 to 50 lbs</li> </ul>	<ul style="list-style-type: none"> <li>Height 5.7"</li> <li>Width 18.3"</li> <li>Depth 16.3"</li> <li>Weight 59 to 65 lbs</li> </ul>	<ul style="list-style-type: none"> <li>Height 20.3"</li> <li>Width 9.7"</li> <li>Depth 18.3"</li> <li>Weight 43 to 49 lbs</li> </ul>
<b>ENVIRONMENTAL REQUIREMENTS</b>	<ul style="list-style-type: none"> <li>10 to 35 degrees C in ambient air • 25 to 80% humidity, noncondensing • RFL/EMM complies with FCC rules part 15C, class-B • Designed to meet UL 478, 114 and CSA 184, 143 • 80 to 100 VAC • 180 to 260 VAC, 50 to 600 Hz</li> </ul>		



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