The computerization problem.

The cost of an OEM computer can be a lot different than the price on the P.O.

In fact, everything considered, the purchase price could be as little as ten percent of the costs incurred over the life of the computer.

To be brutally blunt, it all depends on whose hardware you buy. That's because the cost of computerizing goes way up with most machines.

The cost of hardware integration, for example.

The cost of developing interface electronics.

The cost of developing software.

The cost to maintain the machine once it's out in the field.

Any one of which could seriously impact the profitability of your product. Given that possibility, here's what you need to know to protect those profits.

Engineering Costs.

Prototyping and systems integration is a high-cost area where, traditionally, the OEM has been left to his own devices, so to speak.

ComputerAutomation doesn't work that way. We've accumulated enormous experience in systems integration because we get involved in our customer's projects.

What's more, we've put together a program for sharing that experience with our customers...free, of course. Part of it includes extraordinarily comprehensive documentation provided on an ongoing basis. But more importantly, it's a people-to-people program that even provides on-board support personnel when they're needed.

Programming Costs.

No other endeavor consumes time and money quite like programming. For the OEM who's usually racing to release a new product ASAP, even a minor programming effort can be a major setback.

The solution is to concentrate on the applications end of it and not re-invent software that's already on somebody's shelf—ours. ComputerAutomation has an enormous library of powerful software that will cost you next-to-nothing. Everything from humble assemblers to high-powered compilers in BASIC and FORTRAN IV.

The powerful instruction set that comes with our computers will spare you countless hours of programming effort, too, because it's designed with that objective in mind.

Remember, too, that all our computers are buss compatible. Which means you won't have to start programming all over again when you switch to another computer in our LSI Family.

Interface Costs.

Many times an OEM is forced to invent his own interface...usually a very expensive proposition...because the supplier he's picked doesn't offer all the interface he needs.

Or, in some cases, the supplier's interface solution is so expensive it forces the OEM to go his own way.

So, at a time when he needs to concentrate all his energies on his own product development, the OEM finds himself committing substantial resources to a peripheral project. One that can be deceptively time-consuming and costly.

Suddenly the designers are coming in, more test equipment is being designed/built/ordered, ditto for new jigs and test fixturing, the documentation hassle is getting under way, and the dollar and time costs start really piling up.

ComputerAutomation is the only computer company that has solved that problem. You can see it here in the picture. Our exclusive Distributed I/O System. Probably the closest thing to a universal interface you'll ever come across.

The Distributed I/O System only works with our computers, but it works with *all* our computers.

The way it works is this: one half-card I/O Distributor handles the commonalities for up to eight interfaces. (There's a four interface version, too.) The actual interface is accomplished by an Intelligent Cable—so-called because of the microcoded PicoProcessor molded into the cable.

This system offers amazing versatility: any and all kinds of interface can be mixed in any combination—serial, parallel or whatever. And not just standard peripherals, either. The Distributed I/O System accommodates special purpose black box kinds of things, too. There's even a version you can custom microcode yourself.

The cost? Typically under $200 per interface in OEM quantities of 100.

Maintenance Costs.

The cost of keeping a computer in service over the long haul can be enormous. The proof of which is the huge service revenues reported by some computer companies. (Up to $2,000 per year per computer!)

ComputerAutomation's service revenues, by comparison, are minuscule. The reason is that our equipment is so reliable that breakdowns are few and far between. And when there is a malfunction, the fix is almost always a matter of plugging in a spare board and sending the bad board back to us. No tricky fine-tuning to worry about and no high-priced junior technician in there messing around with your customer's equipment.

The Computerization Solution.

The computerization problem obviously goes far beyond computers. So it makes sense that the solution is not only a computer solution, but a systems solution as well.

To find that solution you have to look at the big picture...which we invite you to do by turning the page.

LIFT

When you're buying low-cost computers, it pays to look beneath the surface.

ComputerAutomation cuts the cost of computerizing.

Knowing what the OEM needs...understanding the OEM predicament. That's what sets ComputerAutomation apart. It's the reason we ship over 100 computers per week—the second highest shipping rate in the industry.

Guaranteed savings.

OEM's buy our computers because they're the most reliable machines made.

Every IC, subassembly, memory subsystem and completed computer is temperature, shock and vibration tested.

That's why ComputerAutomation can offer the only one-year warranty in the industry—when we send a computer out, we know it's not coming back for a long time.

We deliver.

In an industry where one delinquent diode can (and sooner or later will) shut down an entire assembly line, that's saying a lot.

It especially says a lot to OEM's who know they're at the mercy of their sole source computer supplier. One thing you can't do is stick somebody else's machine in that slot.

So here's a thought you might want to stick in the back of your mind for future use:

ComputerAutomation delivers on time.

The reason is that we deliver from inventory—usually a comfortable 30-day cushion of computers sitting around getting more reliable by the minute because they're kept under power and constant test scrutiny.

A lot more trouble for us, but a lot less worry for you. And it does tend to prove our point.

We understand the problem.

From the people who brought you the NAKED MINI.®

The people who brought you the first solution to high-cost computers.

And the most recent solution as well.

And all the solutions in between. Including low-cost memory. And the Distributed I/O System.

Plus on-time delivery. And the only full-year warranty in the business.

The total solution to computerization.

So if you can't spare the time and money to re-invent the wheel, there's a simple solution...from the people who came up with all the other solutions.

Temperature chambers stress computers to isolate marginal components. Computers are continuously tested during 72-hour burn-in at 50°C. Any error starts the test over from the beginning. To further stress the computer, power is cycled on and off approximately 2000 times during test.

Computers awaiting shipment idle away the hours under test. Reliability benefits from the additional component aging.

ComputerAutomation
Naked Mini® Division

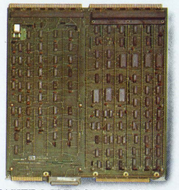
ComputerAutomation, Naked Mini Division, 18651 Von Karman, Irvine, California 92713/Eastern Regional Office, 79 North Franklin Turnpike, Ramsey, New Jersey 07446, (201) 825-0990/Midwestern Regional Office, 2621 Greenleaf Avenue, Elk Grove Village, Illinois 60007, (312) 956-6400/Western Regional Office, 18651 Von Karman, Irvine, California 92713, (714) 833-8830/Europe, CAI Ltd., Hertford House, Denham Way, Maple Cross, Rickmansworth, Hertfordshire, WD3, 2XD, England, Telephone Rickmansworth 71211.

LITHO IN U.S.A.

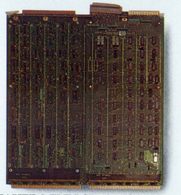
The computerization solution.

NAKED MILLI LSI-3/05 CPU, Type 0. Model 10300-00. Small low-cost processor offers exceptional power and features. 95 instructions, Power Fail Restart, vectored priority interrupts and 16-bit DMA port.

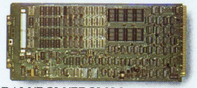
NAKED MILLI LSI-3/05 CPU, Type 1. Model 10300-01. Same as Type 0 at left, but also includes Real-Time Clock and AutoLoad capability.



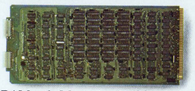
NAKED MINI LSI-2/10 CPU. Model 10600-00. 16-bit minicomputer processor offers twice the speed of LSI-3/05 processors. Includes Power Fail Restart option. See ALPHA LSI-2/10 description.



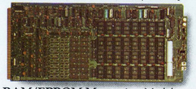
NAKED MINI LSI-2/20 CPU. Model 10400-00. Designed for high-performance applications. Twice the performance of the LSI-2/10 for only a nominal increase in cost. Also includes Power Fail Restart.



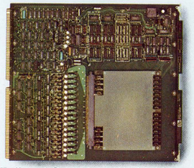
RAM/ROM/PROM Memories. Model 11650-XX. Includes semiconductor RAM in choice of 256, 1K or 2K words; sockets for 8K words of ROM and sockets for 2K words of PROM. Available with On-card Battery Backup.



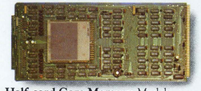
RAM-only Memories. Model 11642-XX. Choice of 4K or 8K words. Available with Battery Pack.



RAM/EPROM Memories. Model 11530-XX. Includes semiconductor RAM in choice of 1K or 2K words and sockets for 4K words of ultra-violet Erasable Programmable ROM. Available with On-card Battery Backup; also, optional EPROM Programmer.

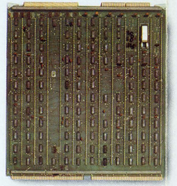


Full-card Core Memories. Model 115X0-XX. Choice of 8K words of Core 980 Memory or 16K words of Core 1200 Memory. For Standard or Jumbo Chassis only.



Half-card Core Memory. Model 11671-XX. 4K words. For either NAKED MILLI/ALPHA LSI-3/05 or NAKED MINI/ALPHA LSI-2 Series Computers.

I/O Distributor. Model 14629-XX. In conjunction with Intelligent Cables (see text), the I/O Distributor provides up to eight interfaces—serial or parallel in any mix. Small version accommodates four interfaces. A DMA version allows data transfer rates up to 250K bytes per second.

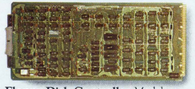


Magnetic Tape Controller. Model 14224-00. Provides interfaces for one to four 9-track standard tape units, or equivalent. Cabling separate.

Intelligent Cables. Model 14631-XX. A broad assortment of models offers low-cost, off-the-shelf interface for most standard and special user devices: Line Printer, Card Reader, Paper Tape Reader, Paper Tape Punch, Current Loop, CRT, Modem, etc. Also, General Purpose and Custom Programmable versions.

16-channel Priority Interrupt Module. Model 13220-00. 16 interrupts with acknowledgement lines.

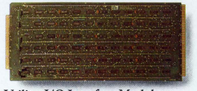
Paper Peripheral Controller. Model 14223-00. Single device controller for paper tape reader, paper tape punch, line printer or card reader. Cabling separate.



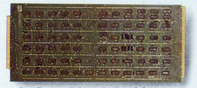
Floppy Disk Controller. Model 14566-01. Provides interfaces for one to four IBM-compatible standard floppy disks, or equivalent. Cabling separate.

Piggyback Teletype Interface. Model 12635-01. For LSI-3/05 processor. On-board mounting provides bit-serial interface. (For byte-serial interface, use Distributed I/O System with Current-Loop Serial Intelligent Cable.)

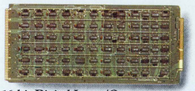
I/O Terminator Module. Model 14511-00. Convenient means for terminating user-designed I/O cables. Plugs onto rear of I/O cards (uses 100 pin connector) with rigid termination. Pads for mounting termination components provided.



Utility I/O Interface Module. Model 14223-00. General purpose interface with 8 or 12-bit output transfers with 4 control bits in parallel.

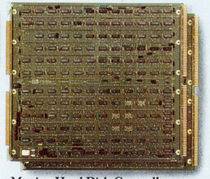


64-bit Input Module. Model 13219-00. Provides 64, 32, 16 or 8-bit inputs with individual strobes.

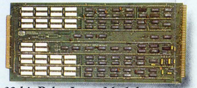


16-bit Digital Input/Output Module. Model 13213-00. Provides input and output registers which may be used as one 16-bit or two 8-bit registers. DTL/TTL compatible.

I/O Driver Module. Model 13222-00. Units drive the computer I/O bus up to 25 feet, buffer internal I/O bus from external noise. Does not include memory signals.

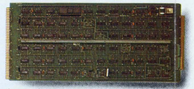


Moving Head Disk Controller. Model 14530-XX. Provides interfaces for one to four standard moving head disk drives, or equivalent. 1500 or 2400 RPM. Cabling separate.

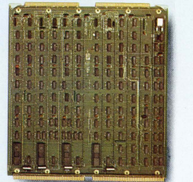


32-bit Relay Input Module. Model 13215-00. Operates as one 32-bit, two 16-bit, or four 8-bit inputs.

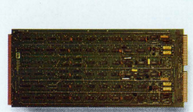
32-bit Relay Output Module. Model 13214-20. Operates as one 32-bit, two 16-bit, or four 8-bit outputs.



Asynchronous Modem Controller. Model 14535-0X. For one asynchronous line (point-to-point, multipoint, or direct dial). Fully programmable for mode, character size, parity, echoplex, diagnostic loop-back, special character detect, variable stop bits. Send/receive speed individually selectable with jumpers—75 to 9600 baud. Available as EIA Interface with full Data Set Controls or as Current Loop Interface.



Asynchronous Modem Multiplexer. Model 14512-XX. As above, but for two or four independent asynchronous lines. Multiple vectored interrupts for each line.

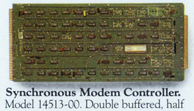


Dual TTY Interface. Model 14236-21. For two modified ASR-33 Teletypes. 20 mA Current loop, 110 baud, two half-duplex channels. Has circuit for programmed motor on/off.

EIA RS232 Interface. Model 14236-5X. For one CRT at baud rates from 110 to 9600. Half-duplex operations only.

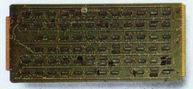
Automatic Calling Unit (ACU) Multiplexer. Model 13523-0X. Provides interfaces for one to four Model 801 ACU's, or equivalent. Simultaneous operations, full digit buffering and sense date-line busy. Four vectored interrupts per ACU. Available for either two or four ACU's.

Dual CRT Interface. Model 14236-1X. For two CRT's or leased line modems. EIA RS232 interface with two half-duplex channels, each with one output control line and one input status line. Baud rates from 110 to 9600.



Synchronous Modem Controller. Model 14513-00. Double buffered, half or full-duplex interface for synchronous communications line (point-to-point, multipoint, or direct dial). EIA RS232C/CCITT compatible, programmable synchronous character, and one special character detect. Odd, even or no parity and 5-8 bit frame size program selectable. Transfer to 9600 baud.

Model 14513-01 provides internal clock with strappable options for 1200, 2400, 3600, 4800, 7200 or 9600 baud operation and full Data Set Controls.

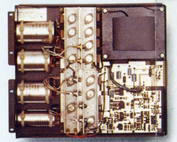


64-bit Output Module. Model 13216-00. Provides output for use as 64-bit word or multiples of 32, 16, or 8-bits with individual strobes.

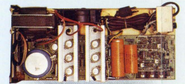
Processor Chassis. Model 12034-00/20500-01. Full-card chassis. Available in 5-slot and 9-slot versions. Includes motherboard and fans.

Card Expansion Modules. Model 12098-00/12099-00. Five and nine-slot versions include chassis, blank panel with expansion buffer controller, interconnecting cables and power supply.

Card Cage, LSI-3/05. Model 12095-0X. Available in either 3-card or 5-card versions. Includes motherboard, card guides, and retaining hardware.

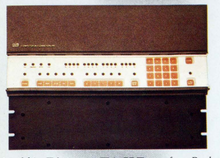


Standard Power Supply. Model 12044-00. Supplies +5V @ 25 Amps, +12V @ 4 Amps and −12V @ 9 Amps.

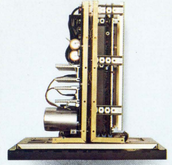


Power supplies for LSI-3/05. Model 12046-0X. Open frame power supplies mount in any plane. Supply +5V @ 10 Amps, +12V @ 0.8 Amps, −12V @ 0.8 Amps, +12V @ 1 Amp, −12V @ 1.5 Amps. With fan.

Jumbo Power Supply. Model 20441-00. Supplies +5V @ 36 Amps, +12V @ 5.6 Amps, −12V @ 10.7 Amps.



MegaByters. Model 109 Series. High-speed 16-bit systems for real-time, communications and business applications. Features include LSI Family compatibility; four standard input-output modes, including Direct Memory Access; vectored priority interrupts; and a comprehensive set of 224 instructions. Includes Jumbo Chassis, Jumbo Power Supply, Programmer's Console, Power Fail Restart, Basic Variables, Teletype or EIA CRT interface, Real-Time Clock, AutoLoad and AutoLoad ROM Set. Full Memory options.



ALPHA LSI-3/05, NAKED MILLI Series. Model 10373-XX. Includes LSI-3/05 CPU (Type 1), with LSI Family compatibility, three half-card chassis, 10-Amp power supply and Operator's Console. This small, low-cost computer offers exceptional power and features, including 95 instructions, Power Fail Restart, vectored priority interrupts, Real-Time Clock, AutoLoad capability and 16-bit DMA port. Full memory options.

ALPHA LSI-2/20 T, NAKED MINI Series. Model 1055X-XX. Same as LSI-2/10 configuration except with high performance LSI-2/20 CPU offering twice the speed of the LSI-2/10.

ALPHA LSI-2/20 G, NAKED MINI Series. Model 1055X-XX. Same as LSI-2/10 G configuration except with high performance LSI-2/20 CPU, as above.

ALPHA LSI-3/05 B, NAKED MILLI Series. Model 10375-XX. Includes LSI-3/05 CPU (Type 1) described at left, plus 5 half-card chassis with fan, 15-Amp power supply and Operator's Console. Full memory options.

ALPHA LSI-3/05 E, NAKED MILLI Series. Model 10366-XX. Same as LSI-3/05 D configuration with addition of Programmer's Console. Either RAM-only or Core Memory in 4K, 8K, or 16K sizes.

Software and Documentation Packages. Advanced software and documentation packages, including BASIC, FORTRAN IV, Real-Time Executive and Operating System are available. Plus a complete inventory of diagnostics, editors, assemblers.

ALPHA LSI-3/05 C, NAKED MILLI Series. Model 10376-XX. Same as LSI-3/05 B configuration with addition of Programmer's Console.

ALPHA LSI-3/05 D, NAKED MILLI Series. Model 10356-XX. Includes LSI-3/05 CPU (Type 1) as above, standard five full-slot processor chassis, 25-Amp power supply and Operator's Console. Core memory in either 4K, 8K or 16K word sizes.

ALPHA LSI-2/10 T, NAKED MINI Series. Model 1074X-XX. A 16-bit minicomputer offering twice the speed of our LSI-3/05 computers. CPU provides 188 major instructions, including multiple stack handling, hardware multiply/divide, memory scan, and extensive byte capability. Five vectored priority interrupts are expandable to 256; two direct memory channels may be increased to 64. Direct Memory Access is standard. Includes Power Fail Restart. Also includes chassis with power supply and Operator's Console. Available in either 5-card or 9-card (Jumbo) versions. 4K or 8K Core 980 Memory or 16K Core 1200 Memory. Memory modules may be added up to 256K words using Memory Bank Control.

ALPHA LSI-2/10 G, NAKED MINI Series. Model 1074X-XX. Same as LSI-2/10 T configuration with addition of Programmer's Console.

NOTE: Products shown are representative only. For information on products, accessories, test equipment or options not covered, please contact the factory or your regional sales representative.