# GIMIX HAS THE 6809 SYSTEM TO SUIT YOUR NEEDS

## HARDWARE

All systems feature the **GIMIX CLASSY CHASSIS**; with a ferro-resonant constant voltage power supply, gold plated bus connectors, and plenty of capacity for future expansion.

Static **RAM** and double-density **DMA** floppy disk controllers are used exclusively in all systems.

All systems are guaranteed for 2 MHz operation and include complete hardware and software documentation, necessary cables, filler plates, etc.

Systems are assembled using burned-in and tested boards, and all disk drives are tested and aligned by **GIMIX**.

You can add additional components to any system when ordering, or expand it in the future by adding **RAM, I/O**, etc.

**GIMIX** lets you choose from a wide variety of options to customize your system to your needs.

## SOFTWARE

All **OS-9/FLEX** systems allow you to software select either operating system.

Also included is the **GMXBUG** monitor and, in systems with 128K or more of RAM, **GMX-VDISK** for **FLEX**.

All **GIMIX OS-9** systems include **Microware's Editor, Assembler, Debugger, Basic09,** and **Runb**; and the GMX versions of **RMS** and **DO** for **OS-9**.

All **GIMIX** versions of **OS-9** can read and write RS color computer format OS-9 disks, as well as the Microware/GIMIX standard format.

New and exclusive with **OS-9 GMX III** systems is the **GMX OS-9 Support ROM**, a monitor for **OS-9** that includes memory diagnostics and allows the system to boot directly from either hard disk or floppy.

A wide variety of languages and other software is available for use with either **OS-9** or **FLEX**.

### OS-9 GMX III/FLEX SYSTEMS (#79)

The **#79** super system now includes (in addition to the above): the **GMX 6809 CPU III**, a **256K CMOS Static RAM Board (#72)**, and a **3-port Intelligent Serial I/O Processor (#11)**.

The **GMX 6809 CPU III** can perform high-speed DMA transfers from memory to memory and uses memory attributes and illegal instruction trapping to protect the system and users from program crashes. If a user program crashes, only that user is affected; other users are unaware of the problem.

The 3-Port Intelligent Serial I/O Board (#11) significantly reduces system overhead by handling routine I/O functions; freeing the host CPU for running user programs. This improves overall system performance and allows user terminals to be run at up to 19.2K baud.

| | |
|---|---:|
| with dual 40 track DSDD drives | **$5998.79** |
| with dual 80 track DSDD drives | **$6198.79** |
| with **#88** dual 8'' DSDD drive system | **$7698.79** |
| with **#90** 19MB Winchester subsystem and one 80 track | **$8898.79** |
| with a 47MB Winchester subsystem and one 80 track | **$10,898.79** |
| with a 47MB plus a 6MB removable pack Winchester subsystem and one 80 track drive | **$12,398.79** |

**TO ORDER BY MAIL:** SEND CHECK OR MONEY ORDER OR USE YOUR VISA OR MASTER CHARGE. Please allow 3 weeks for personal checks to clear. U.S. orders add $5 handling if order is under $200.00. Foreign orders add $10 handling if order is under $200.00. Foreign orders over $200.00 will be shipped via Emery Air Freight COLLECT, and we will charge no handling. All orders must be prepaid in U.S. funds. Please note that foreign checks have been taking about 8 weeks for collection so we would advise wiring money, or checks drawn on a bank account in the U.S. Our bank is the Continental Illinois National Bank of Chicago, 231 S. LaSalle Street, Chicago, IL 60693, account #73-32033.

BASIC-09 and OS-9 are trademarks of Microware Systems Corp. and MOTOROLA, Inc. FLEX and UniFLEX are trademarks of Technical Systems Consultants, Inc. GIMIX, GHOST, GMX, CLASSY CHASSIS, are trademarks of GIMIX, Inc.

### OS-9 GMX I / FLEX SYSTEMS #49

The **#49** systems include 64KB static RAM, #05 CPU, #43 2 port serial board.

| | |
|---|---:|
| with dual 40 track DSDD drives | **$3998.49** |
| with dual 80 track DSDD drives | **$4198.49** |
| with **#88** dual 8'' DSDD drive system | **$5698.49** |
| with **#90** 19MB Winchester subsystem and one 80 track | **$6898.49** |

### OS-9 GMX II / FLEX SYSTEMS #39

The **#39** systems include 128KB static RAM, #05 CPU, #43 2 port serial board.

| | |
|---|---:|
| with dual 40 track DSDD drives | **$4498.39** |
| with dual 80 track DSDD drives | **$4698.39** |
| with **#88** dual 8'' DSDD drive system | **$6198.39** |
| with **#90** 19MB Winchester subsystem and one 80 track | **$7398.39** |

**GIMIX DOES NOT GUARANTEE PERFORMANCE OF ANY GIMIX SYSTEMS, BOARDS OR SOFTWARE WHEN USED WITH OTHER MANUFACTURERS PRODUCT.**

**EXPORT MODELS: ADD $30 FOR 50Hz. POWER SUPPLIES.**

GIMIX, Inc. reserves the right to change pricing, terms, and products specifications at any time without further notice.

ALL PRICES ARE F.O.B. CHICAGO

Contact GIMIX for price and availability of UniFLEX and UniFLEX GMXIII Systems.

NOTE on all drive systems: Dual 40 track drives have about 700KB of formatted capacity; dual 80's about 1,400KB; dual 8'' about 2,000KB. The formatted capacity of hard disks is about 80% of the total capacity.

### Want to expand your system to a megabyte of Static RAM and 15 users?

Simply add additional memory and I/O boards. Your **GIMIX** system can grow with your needs. Contact us for a complete list of available boards and options.

| | |
|---|---:|
| **#72** 256KB CMOS STATIC RAM board with battery back up | **$1898.72** |
| **#64** 64KB CMOS STATIC RAM board with battery back up | **$528.64** |
| **#67** 64KB STATIC RAM board | **$478.67** |
| **#11** 3 port intelligent serial I/O board | **$498.11** |
| **#43** 2 port serial I/O board | **$128.43** |
| **#42** 2 port parallel I/O board | **$88.42** |
| **#95** cable sets (1 needed per port), specify board | **$24.95** |

**GIMIX** inc.

**1337 WEST 37th PLACE**
**CHICAGO, ILLINOIS 60609**
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**WINCHESTER SUBSYSTEMS:** for use only in GIMIX systems with #68 DMA controller.

**#90:** Includes one 19MB drive, interface, and Software . . . . **3188.90**
To substitute 6MB removable pack drive for 19MB . . . . . . **No Charge**
To add 6MB drive . . . . . . . . . . . . . . . . . . . . . . . . . . . **Add 1500.01**
To substitute 47MB drive . . . . . . . . . . . . . . . . . . . . . . . **Add 2200.00**
**#91:** Includes two 47MB drives, interface, and Software . . . **8898.91**

## DISK DRIVES FOR GIMIX SYSTEMS
5'' Drives - 40 Track DSDD . . . . . . . . . . . . . . . . . . . . **2 for 750.00**
5'' Drives - 80 Track DSDD . . . . . . . . . . . . . . . . . . . . **2 for 950.00**
2 - 8'' DSDD Drives, Cabinet & Cables . . . . . . . . . . . . . . **2498.00**
  Cabinet Only for 8'' Drives . . . . . . . . . . . . . . . . . . . . **848.18**
    220V/50 Hz. Option . . . . . . . . . . . . . . . . . . . . . . **Add 30.00**
  Cable Set - Internal for 2 Drives . . . . . . . . . . . . . . . . . **44.82**
  Cable Set - Internal for 4 Drives . . . . . . . . . . . . . . . . . **67.84**
  Cable from 8'' Cabinet to Mainframe . . . . . . . . . . . . . . **45.81**
  8'' Filler Plate . . . . . . . . . . . . . . . . . . . . . . . . . . . . . **14.83**

**THE GIMIX CLASSY CHASSIS #19** consists of a heavyweight aluminum cabinet, constant voltage ferro-resonant power supply, and SS50 Mother board with baud rate generator board . . . . **1498.19**
**#22** Triple Disk Regulator Card . . . . . . . . . . . . . . . . . . . . **88.22**
**#93** Baud Rate Generator Board . . . . . . . . . . . . . . . . . . . **88.93**
**#23** Missing Cycle Detector . . . . . . . . . . . . . . . . . . . . . . **38.23**
**#92** Filler Plate . . . . . . . . . **14.92**   50 Hz Option . . . . . . . . . **30.00**
Cable sets: 8'' with Back Panel connector . . . . . . . . . . . . . **29.25**
for two 8'' external drives . . . . **44.26**  for two 5'' drives . . . . **34.96**

The **GMX 6809 III** and **OS-9 GMX III**. A Multi-user, multi-tasking package for the ultimate in System Performance plus protection of the system and other users from crashes caused by errors in individual users programs.
**#01** GMX III CPU & OS-9-GMX III . . . . . . . . . . . . . . . . . . . **1698.01**

The **#05 GIMIX 6809 PLUS CPU Board** . . . . . . . . . . . . . . . **578.05**
**Options:** GIMIX DAT . . . . . . . . . **35.00**  9511A . . . . . . . . . **312.00**
        SWTP Dat . . . . . . . . . **15.00**  9512 . . . . . . . . . **265.00**

## MEMORIES (GIMIX uses only Static RAM)
**#67** Static RAM - 64K NMOS . . . . . . . . . . . . . . . . . . . . . . **478.67**
**#64** Static RAM - 64K CMOS w/Battery . . . . . . . . . . . . . . . **528.64**
**#72** 256K CMOS Static RAM w/Battery . . . . . . . . . . . . . . . **1898.72**
**#34** 8K PROM Card . . . . . . . . . . . . . . . . . . . . . . . . . . . . **98.34**
**#32** 16 Socket PROM/ROM/RAM Board . . . . . . . . . . . . . . . **238.32**
**#31** 16 Socket Universal Memory Board . . . . . . . . . . . . . . . **268.31**

**INTELLIGENT I/O PROCESSOR BOARDS** increase system throughput by reducing interrupts to the host, buffering data transfers, and data preprocessing. Prices include on board firmware. Requires system drivers.
**#11** 3 Port Serial - 30 Pin . . . . . . . . . . . . . . . . . . . . . . . . **498.11**
**#12** 4 Port Parallel - 50 Pin . . . . . . . . . . . . . . . . . . . . . . . **538.12**
  **#51** Cent. B.P. Cable for **#12** . . . . . . . . . . . . . . . . . . . . **34.51**
  **#53** Cent. Cable Set . . . . . . . . . . . . . . . . . . . . . . . . . . **36.53**
**#13** 4 Port Serial - 50 Pin . . . . . . . . . . . . . . . . . . . . . . . . **618.13**
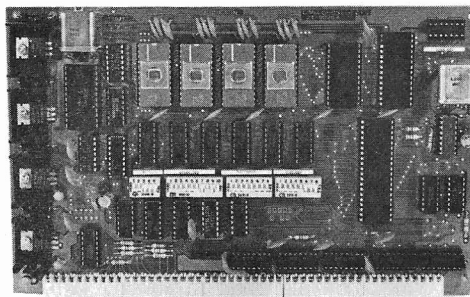


# GIMIX 6800 CPU BOARD #03

- 6800 MPU
- 4K EPROM (2708)
- 128 byte RAM
- 6840 Programmable timer (optional)
- DIP-switch EPROM addressing, compatible with most standard 6800 monitors.
- On board baud rates (optional)

**Control 31 Separate AC Circuits** (20 amps max. ea.)

# RELAY DRIVER BOARDS FOR A.C. POWER CONTROL



4 Boards (124 relays) can be connected to one 20 ma. current loop. Each board controls 31 G.E. RR8 relays.

Use multiple serial ports for additional groups of 124 relays.

**SIMPLE TO CONNECT** Only *two pairs* of wires coming from your computer are needed for each set of four Relay Driver Boards, these wires may be the standard telephone type.

**REMOTELY LOCATABLE.** Relay Driver Boards can be conveniently located for A.C. power distribution — away from the computer and other Relay Driver Boards. The board operates in either the active or the report mode, as specified by the computer. In the active mode, the board interprets the 8-bit data received as a command to turn on or off a particular relay. Following abrief interval to allow the selected realy to operate, the board senses that relay's status (on or off). If the status is other than expected, the computer takes appropriate action, as determined by the program. A command received in the report mode has the same results, except for relay activation. This allows the mode to check relay status at any time.

If the on-board UART detects a transmission error, such as in framing, parity, or overrun, no relays are activated and no status scan occurs.
Clamping terminal blocks for wiring simple SPST-N.O. momentary contact remote switches to individual relays or groups of relays, both on and off, provide manual control as in a normal low voltage switching system, even without the computer. In event of power failures, the relays will remain in the same state that they were in when power is restored. DATA rates up to 1200 baud, allow operating up to 120 relays per second on each port.
**COMPACT** — Only 24'' x 5''
Distances and operation of boards and relays are dependent upon wire length and gauge, and type of transformer.

## RELAY DRIVER BOARD ACCESSORIES

**MOUNTING BRACKET** ★ custom designed to hold a Relay Driver Board and 31 relays. The bracket (26'' x 8¼'' x 4'') and transformer will fit in a standard electrical cabinet (extra room needed for wiring) creating a neat and easily installed system.

**TRANSFORMER** ★ 2 Amp., 24 volts. Custom manufactured to our specs for powering a Relay Driver Board and 31 G.E. RR8 relays.

**G.E. RR8 RELAYS** ★ 24 volt, split coil, mechanical latching type. Once ON they stay ON (drawing no current) until they are powered OFF, and vice-versa. Each relay can handle 20 AMPS for switching lights, motors, machinery, etc. up to 277 V.A.C. — UL listed.
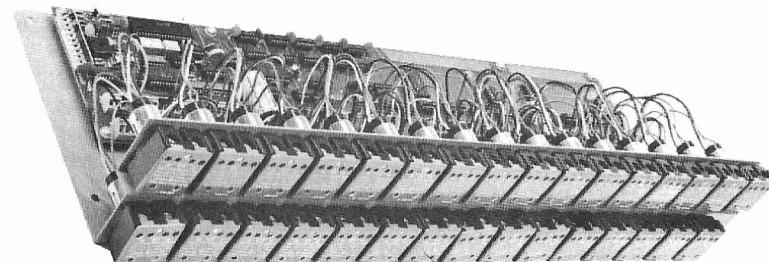
# OPTO-BOARD FOR REMOTE SENSING #85

Links any computer to 34 Outside-World Signals safely
Inputs isolated to 1500 volts
Perfect for detecting closure of switches and relays
Built-in Debouncing.
Signals may range from 5 to 24 volts D.C.
Can detect signals sent by devices such as wall switches, hidden floor switches, electric eyes, alarms, smoke detector, thermostats, and a multiplicity of other applications.

All switch ports are constantly scanned by an on-board circuit. No processor time is required. A built-in memory buffer saves up to 64 closed-switch signals, permitting the processor to complete lengthy tasks between interruptions.
FULL HANDSHAKING LOGIC:
DATA READY output DATA ACCEPTED input
BUFFER FULL output RESET input
ALL OUTPUTS ARE BUFFERED AND TTL COMPATIBLE

## I/O BOARDS (see above for Intelligent I/O's)

| | |
|---|---|
| #41 Serial, 1 Port | 88.41 |
| #43 Serial, 2 Port | 128.43 |
| #46 Serial, 8 Port | 318.46 |
| #42 Parallel, 2 Port | 88.42 |
| #45 Parallel, 8 Port | 198.45 |
| #95 Each cable with connectors for back panel mounting (specify board) | 24.95 |

## FLOPPY DISK CONTROLLERS

| | |
|---|---|
| #68 DMA | 588.68 |
| #28 Double Density PIO | 298.28 |
| #58 5/8 Single Dens. | 226.58 |

**SOFTWARE:** GIMIX exclusive versions of OS-9/GMX I, II, III & FLEX are for GIMIX hardware only. All versions of OS-9 require the **#68** controller. When ordered with any controller, FLEX is ...... **30.00**

| | |
|---|---|
| GIMIX versions of FLEX | 90.00 |
| GMX VDisk for FLEX 09 | 100.00 |
| **GMXBUG: PROMs & Manual** | **148.65** |
| Boot or Video/Boot PROMs (6809) | 30.00 |
| GIMIX Boot PROM for UNIFLEX | 50.00 |
| RMS | 250.00 |
| DO | 70.00 |
| OS-9 GMX III Update w/CPU SPPTROM | 125.00 |
| I/O PROMs w/Update | 40.00 |
| GMXBUG/FLEX/VDISK w/OS-9 III update | Add 175.00 |

## OTHER BOARDS

| | |
|---|---|
| #66 Prototyping Board - 50 Pin | 56.66 |
| #33 Prototyping Board - 30 Pin | 38.33 |
| #76 Video Board - 80x24 | 398.76 |
| #03 6800 CPU | 224.03 |
| #06 6800 CPU w/Timers | 288.06 |
| 6800 Baud Rate Option | Add 30.00 |
| #08 Relay Driver Package | 1128.08 |
| #86 Above without Relays | 538.86 |
| Opto Board | 348.85 |
| Windrush EPROM Programmer S30 | 375.00 |
| Binder, 3'' | 12.00 |
| Binder, 2'' | 9.00 |
| #77 512x512 Graphics Card Set | 996.77 |
| #50 I/O for RS-232C, 423, 422 - w/6850 | 244.50 |
| #52 SSDA with 6852 | 254.52 |
| #54 ADLC with 6854 | 268.54 |

## INTELLIGENT FOUR PORT SERIAL I / O INTERFACE #13

The Intelligent Four Port RS232C Serial Interface is an expanded version of the GIMIX Three Port Serial Interface. It occupies one 50 pin slot on the motherboard.

### FEATURES:

- Independent on-board 2MHz 68B09 CPU.
- Up to 32K of on-board memory (EPROM and RAM).
- Buffered data transfer between host and on-board CPUs using a Z8038 FIO with 128 byte bi-directional FIFO buffer and mailbox message capabilities.
- Four RS-232C serial I/O ports (6551As) with software selectable baud rates, word length, stop bits, and parity.
- Each port has five "handshake" lines for modem control applications.
- Separate 26-pin cable connections for each port plus access to all four ports through a single 26 pin connector.
- Full 20-bit address decoding; it can be addressed on any 4 byte boundary in 1M byte of address space.
- Compatible with memory-to-memory DMA transfers to/from the GMX 6809 CPU III.
- The on-board 6809 can be reset by the host processor.
- Sense switches and status LEDs that can be used to select software options and indicate board status.
- Provisions for data encryption/decryption per Federal Information Processing Data Encryption Standard (#46) using the WD2001 Data Encryption Device. (optional) **$618.13**

Appropriate on-board firmware and operating system drivers are required. Uses up to four #95 cable sets (DB-25S connectors) for individual cables to each port, or a single cable set can be used for access to all four ports. (NOTE: only trasmit, receive, and one handshake line for each port are accessible when a single cable is used for all four ports.)

## GMX 16 SOCKET UNIVERSAL MEMORY BOARD #31

The GMX 16 Socket Universal Memory Board is ideal for systems that require large amounts of EPROM/ROM or a mixture of ROM and additional RAM. The board holds up to 16 EPROMs, ROMs, or RAMs, and allows mixing of device sizes and types; up to 128K of memory total.

### FEATURES:

- Accepts 2, 4, and 8K; 24 and 28 pin single-supply devices (25/2716, 2732, 2764, 6116, 2016, 6264 or equivalent.)
- Each socket is jumper programmable for device type.
- Two 8 socket sections with separate...
  - 20-bit address decoding
  - 6809 MRDY generation if required
  - Device size selection
  - Data bus buffers
- Each section can be configured as 16K (8 x 2K), 32K (8 x 4K) or 64K (8 x 8K) of memory; addressed respectively on any 16K, 32K or 64K boundary in the 1M byte address space.
- Individual sockets can be disabled to allow partial use of the boards address space by other devices.

**$268.31**

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# Only GMX III Systems have all of these unique features!

- The GMX III Support ROM, that provides memory diagnostics usable over the entire 1 megabyte address space and the ability to boot OS-9 directly from hard disk.
- Two operating systems, OS-9 GMX III and GMXBUG/FLEX, with software switching between them.
- The GMX 6809 CPU III, with high-speed DMA circuitry for fast data transfers from memory to memory or between memory and peripherals, memory management in 2K blocks and the ability to assign memory attributes (write and access permission) on a block by block basis, and a watchdog counter to help trap runaway programs. The CPU III supports two distinct operating states, a user state and a system state, to provide isolation between users and the operating system software and eliminate operating system overhead in the users memory space. By taking advantage of the protection features on the CPU III, OS-9 GMX III provides a secure environment, where the actions of a user or user program do not affect other users or the operating system itself.
- Intelligent I/O boards, with a separate 2 MHz 6809 for each 3 or 4 serial ports, to distribute the processing load and increase overall system throughput.
- The capability to expand to a megabyte of STATIC RAM and 16 users, with power and space to spare.
- The ability to read and write RS Color Computer format OS-9 disks.
- A GMX III system gives you all this and more, with the quality and dependability our users have come to expect from GIMIX.

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