# Ai Electronics Corp.

- Independent 8086 and 8089 CPUs may be added
- 16-bit microprocessor
- High-speed multi-CPU
- 8086 main CPU + 8087 (optional)
- 8089 I/O CPU
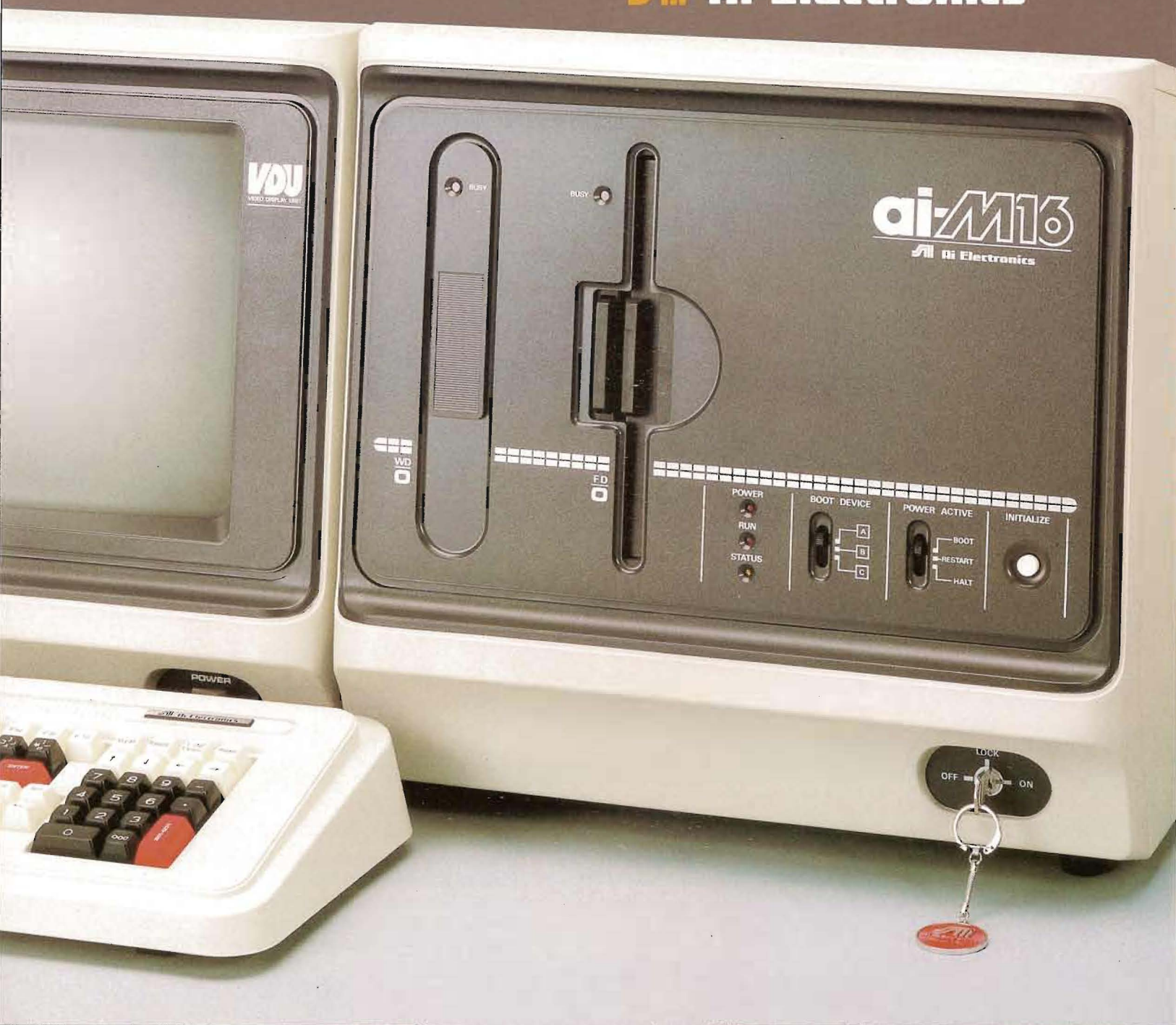- One 5-inch Winchester disk (7.8 M byte) drive

2 7 1983

# SUPER ADAPTIVE INTERACTIVE 16-BIT

## MICROCOMPUTER ai-M16 ®

### Ai Electronics

VDU
VIDEO DISPLAY UNIT

ai-M16
Ai Electronics

BUSY        BUSY

WD

FD

POWER    BOOT DEVICE    POWER ACTIVE    INITIALIZE

RUN              A                   BOOT

STATUS           B          RESTART

                 C          HALT

POWER

LOCK
OFF        ON

# High performance,
## place ai-M16® large volu
### at the top

The ai-M16 microcomputer was developed to be a multi-user, multi-task, high performance microcomputer with multi-processor configuration placing it in a class far above conventional microcomputer systems.

## ● 14-inch, Color Display Unit

*VDU-140/CG is a high performance intelligent terminal having capability for character overlay display, full graphics, and full-screen scrolling features. The high resolution 14-inch, 8-color, 640 dot × 400 dot display uses an 8-bit CPU (8088) and CRT control LSIs.*
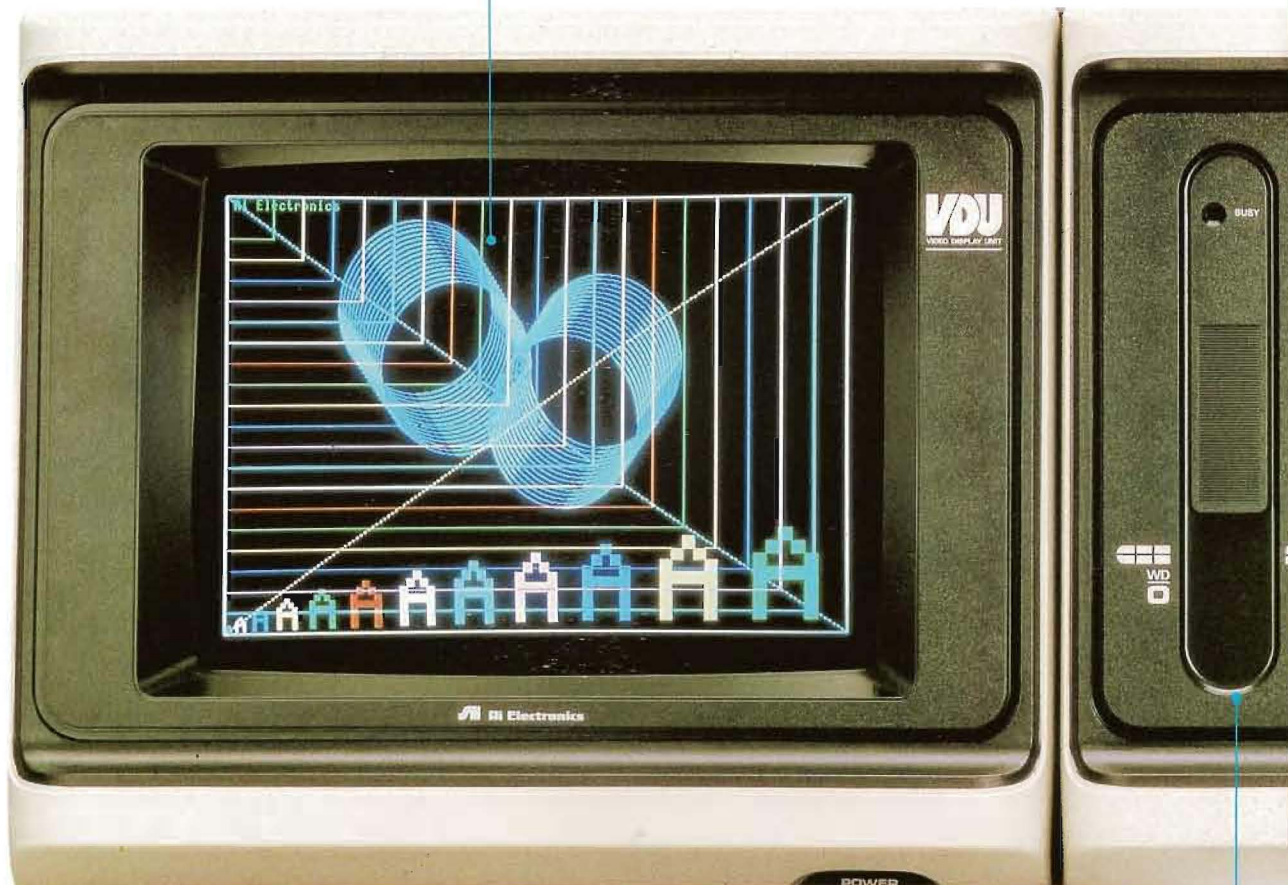
## ● Numeric Pad and 16 Function Keys

*The ai-M16 keyboard contains 16 function keys, a numeric pad, a CRT control key, and may be obtained with JIS, ASCII, Swedish, German, or other categories.*

## 5-inch Winchester Disk Drive●

*The memory is a 5-inch Winchester disk drive with 7.8M byte/drive, and up to 3 drives can be added as expansion options. A large-scale system with 40M and 80M byte capacity can be configured. Data transfer speed is 5M bits/second and there are 960 tracks.*

● **8-inch Double-Density Thin Floppy Disk**

*Memory capacity is 1.1M bytes/drive, and up to 3 drives can be added as expansion options to the standard 8-inch double sided double-density disk. IBM format file conversion is possible. Data transfer speed is 500K bit/second. There are 154 tracks per drive and 15 sectors per track.*
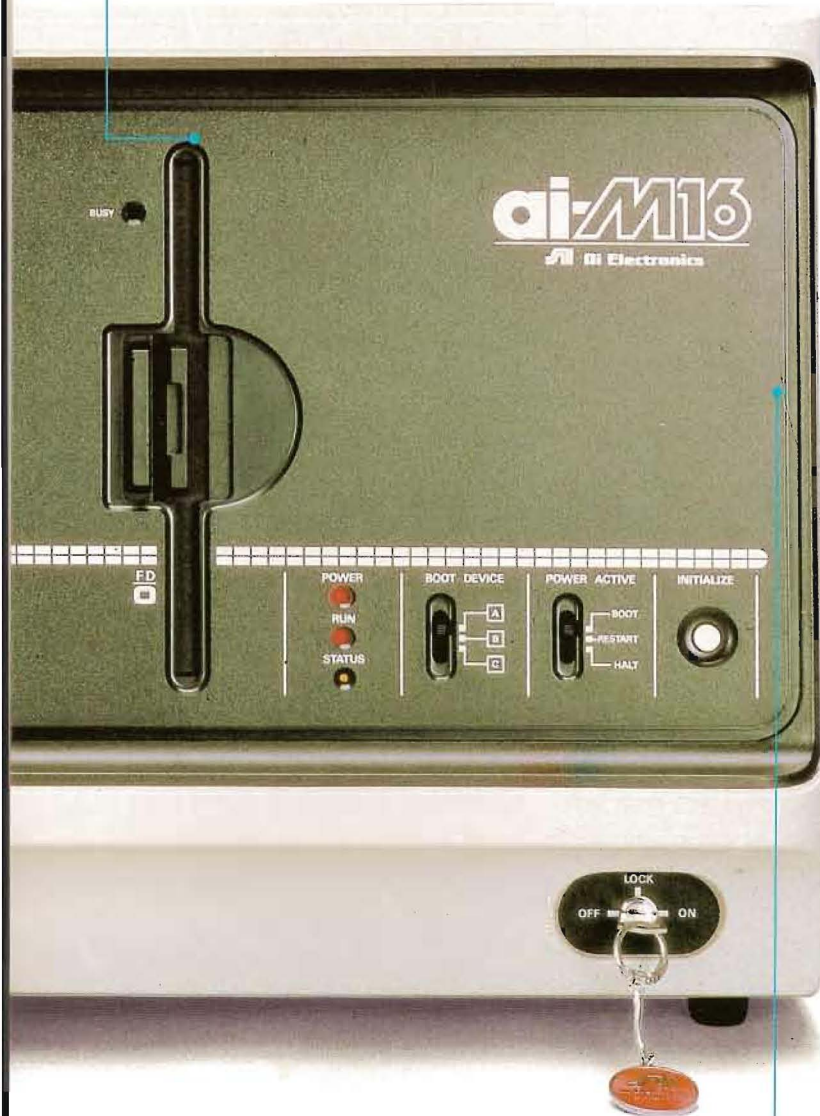


● **4 Board structure provides MCP, PRAM, PFDC and PWDC.**

*Each CPU (8086, 8087, 8089) has 16K byte ROM, 512K byte RAM (with 2 parity bits), 6 serial input/output ports, parallel input/output port, battery backup for calendar clock, 10-channel timer counter clock, and interrupt request has a minimum of 15 channels. The 4-board structure provides MCP, PRAM, PFDC and PWDC.*

## SUPER 16-BIT ai-M16 FEATURES

1. 16-bit microprocessor
2. High-performance, high-speed multi-CPU
3. 8086 main CPU (5 MHz, 8 MHz)
4. 8089 I/O CPU (5 MHz, 8 MHZ)
5. A large-scale system can be created by adding 8086 and 8089 I/O CPUs independent of the arithmetic CPU 8087 (5 MHz, 8 MHz).
6. Main CPU, auxiliary memory controller, multi-terminal controller, and communication controller functions are distributed.
7. The 512K byte RAM (with 2 parity bits) and 16K byte ROM are standard equipment.
8. The maximum memory size of each CPU is 512K bytes and public memory is 512K bytes.
9. The two-bus system includes a high-speed private bus and public bus (IEEE-796) for convenience.
10. Serial I/O: 6 port RS-232-C specified for use as the interface for CRT terminal, frequency synchronized memory, acoustic coupler, serial printer, X-Y plotter and digitizer.
11. Parallel I/O: Single port Centronics interface.
12. Battery backup for the calendar clock which displays year, month, day, hour, minute and second.
13. 10-channel timer counter clock. Six channels for serial I/O baud rate setting.
14. Interrupt request input: 15 channels minimum to permit expansion.
15. System modules are based on single function unit packaging, to permit matched buildup depending on the user's applications.
16. All peripheral equipment is compatible for each package.
17. Modules inside the mainframe have 10 slots. In the basic structure, 4 slots are used. The main modules are as follows:
    ● Master control processor board
      QM-4001 — MCP
    ● Private memory board
      QM-4020 — PRAM
    ● Private floppy disk controller
      QM-4366 — PFDC
    ● Private Winchester disk controller
      QM-4321 — PWDC
    The above four boards are standard equipment in the mainframe and the following four are options:
    ● Global memory board
      QM-0020 — GRAM
    ● Stream I/O processor board
      QM-0520 — SIOP
    ● Data communications I/O processor board
      QM-0082 — DIOP
    ● Character I/O processor board
      QM-0080 — CIOP
18. One 5-inch Winchester disk (7.8 Mbyte) drive is standard equipment. (20 Mbyte Winchester disk is available as option.)
19. One 8-inch double-density thin floppy disk (1.1 Mbyte) drive is standard equipment.
20. The CRT terminal is a high-class, intelligent component type. The CRT terminal type and scale can be freely selected. The standard CRT terminals are:
    ● 12″ green character CRT
    ● 14″ green character CRT
    ● 14″ color graphics CRT
21. CP/M-86™, MP/M-86™, UCSD PASCAL™ IV, and MS-DOS™ disk operating systems can be used. UNIX™ will also be added shortly for high level applications.
22. FORTRAN, BASIC, COBOL, C, PASCAL, PL/1, ADA, and a language processor are available.
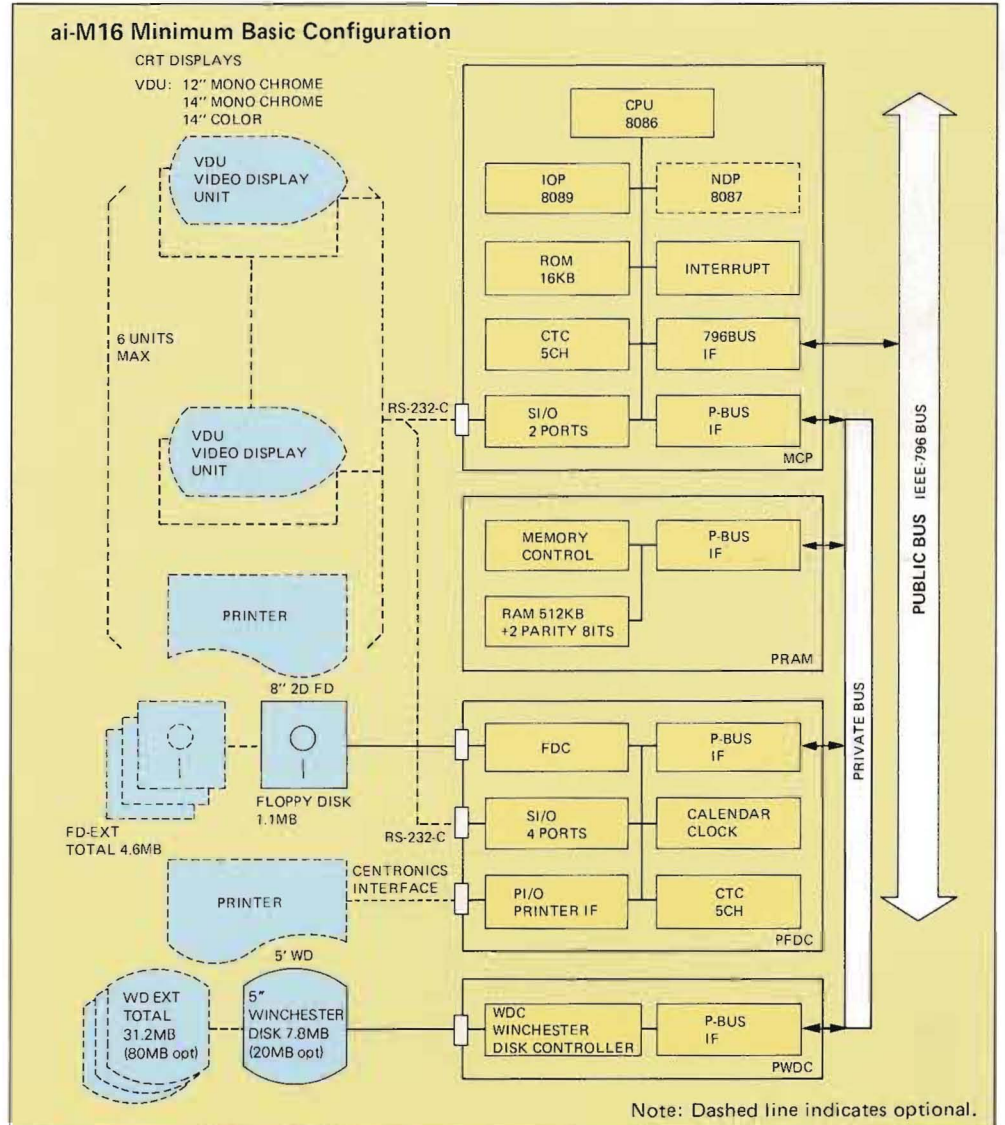23. ABC-24/26 software currently available can be used.

*VDU-140/CG Terminal*



*ai-M16 Mainframe*

## CRT FEATURES

1. These intelligent display systems were developed based on Ai Electronics' more than 20-years of experience in computer technology.
   - 12″ green character display unit VDU-120/MC
   - 14″ green character display unit VDU-140/MG
   - 14″ color graphics display unit VDU-140/CG
2. VDU-140/MG, VDU-140/CG have 14″ CRTs with full graphics. Both have 640 dot (horizontal) × 400 dot (vertical) high-resolution displays. Ordinary characters can be displayed with full graphics overlay or independent display can be selected. The graphics buffer RAM is 128K bytes.
3. A high-performance 8-bit CPU provides CRT control and external interface control. High-speed display is made possible by using an 8088 CPU, and incorporating two high performance LSI chips for character and full graphics control.
4. CRT control memory is a 16 KB ROM and a 64 KB RAM. (OPTIONAL 32 KB ROM VERSION)
5. The character display handles alphanumerics and special characters, kanji, and JIS characters by selecting the attribute code. Combined display is available.
6. Timer counter: 5-channel, serial I/O: 2 ports
7. CRT control board has all functions incorporated into a single 4-layer board
8. The super hardware functions for CRT screen control are as follows:
   - Convenient character display mode LSI functions.
   - Automatic cursor shift function
   - Programmable cursor shift function
   - Character attributes can be set
   - Flexible scroll function
   - 80 character × 25 line screen output graphics display model LSI functions
   - 640 × 400 dot monochrome or color graphic display
   - High speed data manipulation
   - Blink mode or No-Blink mode selectable
   - Zooming and screen scroll are available.

### ai-M16 Minimum Basic Configuration



CRT DISPLAYS
VDU: 12″ MONO CHROME
14″ MONO CHROME
14″ COLOR

Note: Dashed line indicates optional.

●CP/M and MP/M: registered trademarks of Digital Research ●UCSD PASCAL IV: registered trademark of the Regents of the University of California ●UNIX: registered trademark of Bell Laboratories (AT.T) ●MS-DOS: registered trademark of Microsoft

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