

A top of the line, single-user Artificial Intelligence System supporting the four most popular AI languages in use today. Featuring very powerful standalone processing capabilities and ability to access host computing systems.

ARTIFICIAL INTELLIGENCE SYSTEM

- High-performance 68020 32-bit CPU, 68881 floating point co-processor
- Smalltalk-80™ Artificial Intelligence programming language provided standard
- Tek® Common Lisp, MPROLOG™ and Franz Lisp available as options
- 19-inch, 1280 × 1024 bit-mapped display

The Tektronix 4406 Artificial Intelligence System is the highest performance member in the compatible Tek 4400 AI Series. Offering a high speed 16 Mhz Motorola 68020 32-bit microprocessor and a 68881 co-processor for floating point operations, the Tek 4406 is clearly state-of-the-art. It has the power and memory to handle even the most complex AI programs with speed and efficiency. The system includes a 32 Mbyte virtual memory address space, a full 2 megabytes of dynamic RAM (expandable to 6 Mbytes) and a 90 Mbyte hard disk with accompanying 320 Kbyte 5¼" floppy. The optional 4944 Mass Storage Unit further enhances 4406 performance by providing incremental 90 Mbyte hard disk backup.

The Tek 4406 inherits the innovative design and advanced manufacturing techniques pioneered by the Tek 4404 AI System. Employing VLSI architecture and 32-bit data paths, the Tek 4406 is nearly twice as powerful as the Tek 4404. It is equally appropriate for AI research, application development, or as a cost effective delivery system.



Optimized display and graphic input

At the user interface, the 4406 incorporates high quality Tektronix display technology in a large 19" CRT operating at 60 Hz, non-interlaced. A 1280 × 1024 bit-mapped screen offers sharp text, graphics and icons. Screen interaction is accomplished with a 3 button mouse or with the keyboard's integral joydisk.

AI programming environments

The Tek 4406 supports all of the popular AI programming languages in use today. Smalltalk-80, Tek Common Lisp, MPROLOG and Franz Lisp all run on the 4406. Programs developed on the Tek 4404 and 4405 are upwardly compatible with the 4406.

The Tek 4406 is supplied with a powerfully enhanced, proprietary version of the Smalltalk-80 language. This exploratory programming environment is well integrated, object-oriented and very extensible. It offers support for quick prototyping and simulation of user interfaces and complex, graphics-oriented applications. A text and graphics editor, incremental compiler, debugger and multiple window capabilities are all included standard.

The optional Tek Common Lisp is a full implementation of the new industry standard for AI languages. It offers powerful manipulations of lists and symbolic expressions while providing a rich set of data types. Tek Common Lisp on the 4406 is a high performance, completely optimized, proprietary implementation.

Another optionally available programming environment, MPROLOG, is a dialect of Prolog. It is widely used for its logic programming orientation. The optional Franz Lisp language offers recursive programming techniques to facilitate building natural language interfaces and expert systems. It has the added benefit of a large base of existing applications, especially in VAX environments. An optional EMACS visual text editor interfaces easily with all four languages available on the 4406. It allows rapid code entry which may be freely manipulated by the user.

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Virtual memory operating system

A Unix-like operating system is supplied which supports a hierarchical file structure and the 32 Mbyte virtual memory address space of the 4406. This multi-tasking operating system also includes valuable utilities such as an assembler, C compiler and a standard I/O library.

Flexible communications

Communications with a host computer is achieved with standard VT100 (ANSI x3.64) emulation over the standard RS-232 port. For even higher speeds and local area network capabilities, an optional IEEE standard, TCP/IP protocol Ethernet interface is available.

Quality support

The 4406 includes a standard 90 day warranty on all parts and labor which can be supplemented by an optional one year coverage. Included with each system is a one year software update service which can be renewed annually. Tektronix' commitment to its artificial intelligence customers also includes several specialized AI regional support centers across the country.

Specifications

The Tek 4406 Artificial Intelligence System offers these standard features:

- Smalltalk-80 programming environment
- Motorola 68020 32-bit microprocessor
- 68881 floating point co-processor
- 2 Mbyte high-speed dynamic RAM memory
- Virtual memory operating system with multi-tasking and hierarchical file structure
- C compiler with standard I/O library
- Virtual memory management for 32 Mbyte address space
- 1280 x 1024 monochrome, bit-mapped display, 60 Hz, non-interlaced
- Three button mouse
- 90 Mbyte, 5¼ inch hard disk and 320 Kbyte, 5¼ inch floppy disk
- ANSI x3.64 (VT100) terminal emulation
- SCSI interface
- RS-232C communications interface with host communications/file transfer utility
- Centronics-style parallel hard copy interface
- Low-profile detached keyboard with ASCII characters; 14-key numeric keypad; 4 special and 8 dedicated programmable function keys; N-key rollover and joydisk
- Programmable sound generator
- Crystal-controlled clock/calendar with battery backup
- Meets the requirements of UL 478, UL 114 VDE 110, CSA 154, and IEC 435

Smalltalk-80 is a trademark of Xerox Corporation.
MPROLOG is a trademark of Logicware, Inc.
Franz Lisp is a trademark of Franz, Inc.
Unix is a trademark of AT&T Bell Labs.
VAX and VT100 are trademarks of Digital Equipment Corporation.

4406 Performance Characteristics

| | | | |
|---------------------------|--------------------------------|--|-----------|
| Display Size | 482.6 mm (19 in) | Communications | RS-232-C |
| Viewing Area | 356 x 267 mm (14 x 10.5 in) | | |
| Terminal Emulation | | Maximum Baud Rate With Flagging | 9600 Baud |
| ANSI X3.64 | | | |
| 80 Characters x 32 Lines | | | |
| Bit-Map Resolution | | Hard Disk Capacity | |
| Viewable Points | 1280 x 1024 | Formatted | 90.0 MB |
| Addressable Points | 1280 x 1024 | | |
| Pointing Devices | | Flexible Disk Capacity | |
| Joydisk | | Formatted | 320 KB |
| Mouse | | | |

Physical Characteristics

CPU Module

| | |
|--------|---|
| Width | 553.7 mm (21.8) |
| Height | 429.3 mm (16.9 in) |
| Depth | 566.4 mm (22.3 in plus 3.0 for cables) |
| Weight | 31.8 Kg (70 lbs) |

Mass Storage Module

| | |
|--------|----------------------|
| Width | 368.3 mm (14.5 in) |
| Height | 127.64 mm (5.025 in) |
| Depth | 433.07 mm (17.05 in) |
| Weight | 6.35 Kg (14 lbs) |

Environmental Characteristics

Operating Temperature 10 to 40°C
Humidity 10 to 75% relative humidity,
non-condensing

Line Voltage

115V (nominal); 87-128V; 230V
(nominal); 174-250V at 48-66Hz

Safety Information

Meets the requirements of UL 478, UL
114, VDE 110, CSA 154 and IEC 435

System Input Power

Less than 200W Operating

Options and Accessories

4406 Hardware Options

- Opt. 02 Additional 2 MB Memory
- Opt. 04 Additional 4 MB Memory
- Opt. 10 Ethernet Interface
- Opt. A1 Universal European
220V/16A Power Cord
- Opt. A2 United Kingdom 240V/13A,
Power Cord
- Opt. A3 Australian 240V/15A Power
Cord
- Opt. A4 North American 115V/15A
Power Cord
- Opt. A5 Swiss 220V/6A Power Cord

4406 Software Options

- 4400P30 Opt. 06 Franz Lisp
Programming Language
- 4400P31 Opt. 06 MPROLOG
Programming Language
- 4400P32 Opt. 06 EMACS Editor
- 4400P33 Opt. 06 Tek Common Lisp
Programming Language

Accessories

- 4406 User's Manual
- 4406 Reference Manual
- Introduction to Smalltalk Manual
- 2 Power Cords
- Standard Keyboard
- RS-232-C Cable
- SCSI Cable and SCSI Terminator
- 3-Button Mouse

For further information, contact:

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Specifications may change without notice.

OEM prices and leasing programs (U.S. only) are available.

Some of the products, options or services mentioned in this brochure may not be available outside the USA. Contact your local Tektronix representative for details.

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