A single-user, desktop system for Artificial Intelligence application development, programming and delivery systems. Features powerful standalone processing capabilities and ability to access host computing systems.

ARTIFICAL INTELLIGENCE SYSTEM

- **68020 32-bit CPU with 68881 floating point co-processor**
- **Tek® Common Lisp, MPROLOG™ and Franz Lisp available as options**
- **Includes the Smalltalk-80™ programming environment**
- **Bit-mapped graphics with mouse or joydisk input**

The Tektronix 4405 Artificial Intelligence System joins the Tek 4404 and 4406 to offer a complete family of AI application development tools and delivery systems. The Tek 4405 sets new price-performance standards for machines of its class by offering a complete, state-of-the-art, personal AI development system that rivals units costing much more.

Delivering significantly more processing power than the 4404, the Tek 4405 is ideally suited for larger AI efforts. It provides all the software and hardware capabilities needed for developing major artificial intelligence programs. The 4405's advanced languages make it an excellent exploratory programming and software prototyping tool.

A wide range of AI programming languages

All of the major AI languages in use today are represented on the 4405 including Tek Common Lisp, Smalltalk-80, MPROLOG and Franz Lisp. This offers AI researchers and developers a clear choice of leading edge programming environments— all accessible from a single desktop device, all fully compatible with the entire Tek family of 4400 Artificial Intelligence Systems.

To complement the 4405, the Smalltalk-80 programming environment is included standard. This exploratory programming tool offers a highly integrated, object-oriented user interface and is ideal for quick prototyping of complex images. It includes text and graphics editors, incremental compiler, debugging

tools and multiple-window management capabilities.

Other languages are optionally available. Tek Common Lisp is a full implementation of the newly emerging standard. MPROLOG, a dialect of Prolog, is based on logic programming principles. Franz Lisp is widely known and used by many AI researchers and computer science innovators. An optional EMACS visual text editor provides rapid source entry and manipulation no matter which programming environment is employed.

High performance microprocessor system

The Tek 4405 includes a Motorola 68020 microprocessor operating at 16 Mhz. A high speed 68881 floating point co-processor and a full megabyte of dynamic RAM provide the necessary power and throughput for AI applications. An additional 2 or 4 Mbytes of RAM are optional.

Mass storage includes a 45 Mbyte hard disk and 320 Kbyte floppy. An optional 90 Mbyte hard disk is available to replace the standard hard disk (4405 Opt. 21). For additional disk storage and backup, the 4944 Mass Storage Unit may be employed.

This provides incremental 90 Mbyte hard disks (4944 Opt. 02) and streaming tape drives (4944 Opt. 01) for data backup.

Virtual memory operating system

The Tek 4405 is supplied with a Unix-like virtual memory operating system which supports multitasking. A 32 Mbyte virtual memory address provides needed space for often complex AI applications without resorting to segmentation or overlays. A set of utility programs including an assembler, C compiler and standard I/O library is also provided.

Highly interactive user interface

A bit-mapped graphics display with mouse input is closely coupled to the processor for a state-of-the-art user-interface. The 13″ monochrome display has 640-by-480 pixel resolution and operates at 60 Hz, non-interlaced. It functions as a window into a 1024-by-1024 bit-map memory with smooth panning whenever the cursor reaches a physical display edge.

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Flexible communications for added utility

The Tek 4405 may be connected to a number of peripherals and also functions as part of a larger environment. VT100 (ANSI ×3.64) terminal emulation enhances communcation with mainframes through the 4405's standard RS-232 port. An optional IEEE standard, TCP/IP protocol Ethernet interface provides local area network.

Tektronix reliability and support

Like all Tek products, the 4405 is serviced through a world-wide network of sales and service centers. The 4405 has a standard 90 day hardware warranty with optional one year coverage. A one year software update service is included with each system and can be renewed on an annual basis. Tektronix' commitment to its artificial intelligence customers also includes several specialized AI regional support centers across the country.

Specifications

The Tek 4405 Artificial Intelligence System offers these standard features:

- Smalltalk-80 programming environment
- Motorola 68020 32-bit microprocessor
- 68881 floating point co-processor
- 1 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
- 640×480 monochrome, bit-mapped display, 60 Hz, non-interlaced
- 1024×1024 bit-mapped display address space with smooth panning
- Three button mouse
- 45 Mbyte, 5¼ inch hard disk and 320 Kbyte, 5¼ inch floppy disk
- ANSI ×3.64 (VT100) terminal emulation
- SCSI interface
- RS-232C communications interface with host communications/file transfer utility
- Centronics-style parallel hard copy interface 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
- ROM/EPROM expansion sockets
- Meets the requirements of UL 478, UL 114 VDE 110, CSA 154, and IEC 435

4405 Performance Characteristics

Display Size	330 mm (13 in)	**Hardware Panning**	Yes
Viewing Area	241 × 178 mm (9.5 × 7 in)	**Communications**	RS-232-C
Terminal Emulation		**Maximum Baud Rate**	
ANSI X3.64		**With Flagging**	9600 Baud
80 Characters × 32	Lines		
Bit-Map Resolution		**Hard Disk Capacity**	
Viewable Points	640 × 480	Formatted	45.0 MB
Addressable Points	1024 × 1024		
Pointing Devices	Joydisk	**Flexible Disk Capacity**	
	Mouse	Formatted	320 KB

Physical Characteristics

CPU Module		Mass Storage Module	
Width	419 mm (16.5 in)	Width	368.3 mm (14.5 in)
Height	353 mm (13.9 in)	Height	127.64 mm (5.025 in)
Depth	495 mm (19.5 in plus 3.0 for cables)	Depth	433.07 mm (17.05 in)
Weight	20 Kg (44 lbs)	Weight	6.35 Kg (14 lbs)

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

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

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

System Input Power
Less than 200W Operating

Options and Accessories

4405 Hardware Options

Opt. 02	Additional 2 MB Memory
Opt. 04	Additional 4 MB Memory
Opt. 10	Ethernet Interface
Opt. 21	90 MB Hard Disk (replaces standard 45 MB hard disk)
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

4405 Software Options

4400P30	Opt. 05 Franz Lisp Programming Language
4400P31	Opt. 05 MPROLOG Programming Language
4400P32	Opt. 05 EMACS Editor
4400P33	Opt. 05 Tek Common Lisp Programming Language

Accessories
4405 User's Manual
4405 Reference Manual
Introduction to Smalltalk Manual
2 Power Cords
Standard Keyboard
RS-232-C Cable
SCSI Cable and SCSI Terminator
3-Button Mouse

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Specifications may change without notice.

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

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