1. Product Description

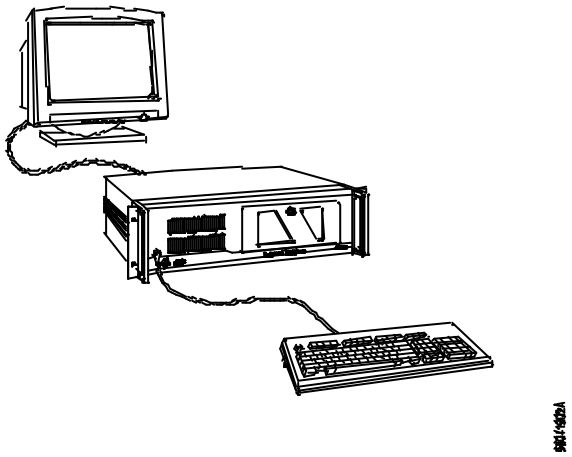
The Industrial Computer AL-1490 has an architecture compatible with the most used operational systems as DOS, Windows™, Windows NT™, WINDOWS™ 95 and QNX™. Assembled in 19" steel rack, with two filtered cooling fans that mantains positive air circulation through the whole chassis, hold-down clamps for plug-in cards and shock mounted drive brackets, the Industrial Computer AL-1490 can withstand schok, vibration and dust found in a harsh industrial environment.

It can be configured with 16, 32, 48 or 64 Mbytes of RAM to exactly pass the user application.

It's an ideal equipment for open supervisory and proccess control systems, supporting supervisory softwares witch handle data bases located at Altus Programmable Controllers, through proprietary networks (ALNET I or ALNET II) or Ethernet.

Basic configuration:

- CPU PENTIUM™ 120 MHz with 256 Kbytes 2nd-level cache
- 16 Mbytes RAM
- ISA/PCI-bus passive backplane
- 250W UL power supply
- PCI video controller with 1 Mbyte
- floppy disk drive 3 ½ ", 1.44 Mbytes
- hard disk 853 Mbytes
- 101-key keyboard
- 3-buttom mouse



The SVGA monitor is not supplyed with AL-1490 Industrial Computer. It shoud be adquired separately.

2. Packing List

- Industrial Computer AL-1490: 19" rackmount case with power supply, ISA/PCI-bus passive backplane, CPU with cache memory and RAM memory, 3 ½ " (1.44 Mbytes) floppy drive, hard disk, SVGA controller card; 101-key keyboard, mouse, user manual, rack, CPU and SVGA controller card manuals.

3. General Characteristics

3.1. 19" Chassis

- Passive backplane with:
  - 9 ISA slots
  - 3 PCI slots (one used by SVGA controller)
  - 1 CPU slot
- Lockable door for control panel
- Control panel switches:
  - power
  - reset
  - keyboard-lock
- Control panel LED indicators:
  - on/off
  - HDD
  - keyboard-lock
- DIN keyboard connectors available on both front and rear panels
- Dual push-pull fans maintain positive air circulation through the whole chassis
- Removable air filter
- Internal 8 Ohm speaker
- 3 ½ ", 1.44 Mbytes, floppy disk drive
- 853 Mbytes hard disk drive
- Operating temperature: 32°F to 122°F (0 a 50 °C)
  exceeds IEC 1131
- Relative humidity: 5 a 95%
  meets IEC 1131, level RH2
- Vibration (operating):
  - 5 a 17 Hz: 0.1" double amplitude displacement
  - 17 a 500 Hz: 1.5 B acceleration peak to peak
- Shock (operating):
  - 10 G acceleration peak (11 msec. duration)
- Safety: meets UL/CSA/TUV
- Weight:
  not shipped: 21 kg
  shipped: 23 kg

3.2 CPU PENTIUM ä

- Clock: 120 MHz
- 256 Kbytes cache memory
- ISA and PCI bus interface
- 64-bit data bus
- Four 72-pin sockets for SIMM memory modules (AL-1490 Industrial Computer is assembled with two 8Mbytes SIMM memory modules)
- 16 Mbytes RAM
- Supports up to four IDE (AT bus) large hard disk drives (up to 8.4 Gbytes) or other enhanced IDE devices
- Supports up to two floppy disk drives, 5 ¼" (360, 1.2 Mbytes) and/or 3" ½ (720, 1.44, 2.88 Mbytes)
- Enhanced bi-rectional parallel port: configurable to LPT1, LPT2, LPT3 or disabled. Standard DB-25 female connector provided
- Two serial RS-232 ports with 16C550 UARTs (or compatible) with 16-byte FIFO buffer. Supports speeds up to 115 Kbps. Ports can be individually configured to COM1, COM2 or disabled
- Real time clock/calendar with lithium battery back-up for 10 years of data retention
- Watchdog timer can generate a system reset or IRQ11. Jumper configurable to always disabled or software programmable enabled/disabled. The timer interval is 0.5 ~ 1008 sec. (12 levels)
- CPU overheat protection: a temperature sensitive fan power connector and a CPU overheat alarm to prevent and signal CPU overheating

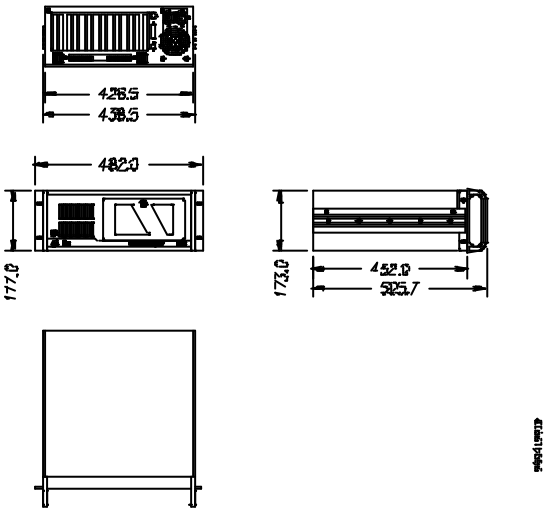
3.3 SVGA Video Controller

- IBM VGA compatible
- DB15 standard connector
- 1 Mbyte video memory
- PCI Interface

3.4 Power Supply

- Maximum output: 250 W
- Input voltage:
  90 to 132 Vac or
  180 to 264 Vac (switchable)
- Output voltage:
  +5 Vdc @ 25A
  +12 Vdc @ 10A
  -5 Vdc @ 0.3A
  -12 Vdc @ 0.3A
- Safety: UL/CSA/TUV approved
- MTBF: 50.000 hours at 70% load and 77°F (25 °C)

4. Physical Dimensions



Physical Dimensions (mm)

5. Optionals

5.1 Communication Cables

Cable	Interconnected Equipments		Lenght
AL-1330	AL-1490	PICCOLO serie PLCs	3 m
AL-1390	AL-1490	AL-600, AL-2000, AL-3000, QUARK series PLCs and MMIs FOTON serie	2 m

5.2 Other

	Part	Description
AL-1616	EDO RAM 16 Mbytes 60ns 72-pin	RAM memory expansion
AL-1630	SVGA Monitor 14”	SVGA color monitor, dot pitch 0.28 mm, 14 inches
AL-1631	SVGA Monitor 20”	SVGA color monitor, dot pitch 0.28 mm, 20 inches

5.2.1. Memory Expansion

- The PENTIUM™ processor operates with 64-bit data bus and each EDO RAM module has 32-bit data bus, so memory expansion must be made with EDO RAM modules
- UCP board supports maximum 4 EDO RAM modules
- The AL-1490 Industrial Computer has basic configuration of 16Mbytes RAM, acheived with one EDO RAM AL-1616 (16 Mb) module. The following table shows valid configurations:

memory	AL-1616
16Mb	1
32Mb	2
32Mb	3
48Mb	4
64Mb	4

CPU board manual should be consulted for memory installation

6. Manuals

Consult following manuals to obtain more information about installation, setup and utilization:

- CPU, video controller, rack, mouse manuals and brochures supplyed with AL-1490 Industrial Computer

7. Remarks

The characteristics described in this document are minimal characteristics that may be exceeded without notice, e.g. greater HDD, clock and memory.

8. Revisions

The revision of this document is shown on top of the page, indicating content changing or format improvements.

Altus reserves the right to modify this TC without previous notice, in order to improve product characteristics.

The following report shows each revision and corresponding remarks:

Revision: A	Date:08/05/96
Approval: José Adil Albrecht	
Author: Eduardo Todt	

Remarks:

- Initial revision

Revision: B	Date:04/02/98
Approval: Luiz Gerbase - Director - R&D	
Author: Alexandre Voigt da Poian - R&D	

Remarks:

- Changing of 8 MB SIMM memory modules by 16 MB EDO RAM. The 8 MB SIMM modules are not compatible with Pentium processors.