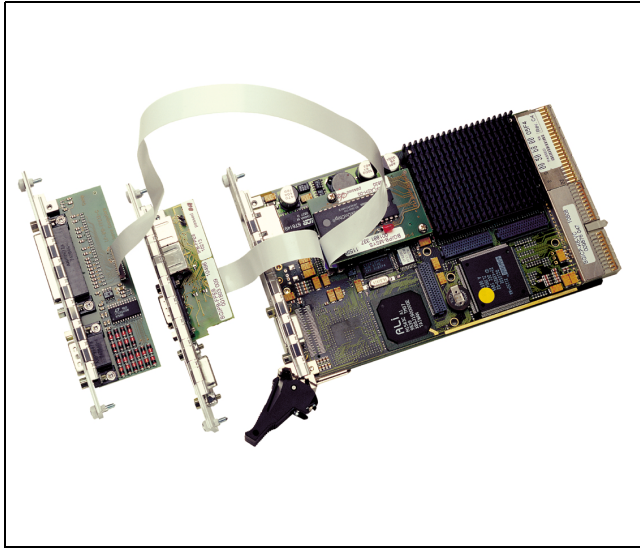


I/A Series® Remote Terminal Unit (RTU)

RTU 40 – Central Processing Unit (CPU) Board



HIGH-PERFORMANCE CPU BOARDS

The ICP-K6 is a high-performance, high-density CompactPCI, CPU board that satisfies the needs of a wide range of industrial automation, telecommunication, local and remote process control applications.

The ICP-K6 CPU board is the first of its kind to support true multiprocessing on a 3U form factor by utilizing the features of its AMD K6-2 (an Intel™ Pentium™-compatible, low-power, high-performance microprocessor), combined with a Digital™ 21554 non-transparent PCI/PCI bridge.

CONFIGURATION

Two basic RTU 40 CPU configurations are available:

- 166 MHz clock, 32 MB SDRAM, 24 MB DiskOnChip™ flash (designed for standard and extended operating temperature ranges)
- up to 450 MHz clock, 64 MB SDRAM, slim hard-drive 6 GB minimum, built-in SVGA graphic controller with 4 MB high-speed SGRAM, standard keyboard and mouse interfaces (available for standard operating temperature range only).

Compact modularity is assured through the use of dedicated plug-in SDRAM modules. The use of DiskOnChip technology or standard slim hard drive allows the CPU board to be tailored with the proper data/program local memory to meet the needs of each application.

In term of communications, each RTU 40 CPU module is equipped with:

- one Ethernet interface 10/100BaseT/Tx (10/100 Mbps)
- two serial RS-232-C (COM1 and COM2)
- one FireWire™ interface
- one universal serial bus (USB) interface.

An optional piggy-back module can be plugged on board to manage two additional serial lines (RS-232-C or RS-485) or one Fieldbus interface.

The RTU 40 CPU family supports functionality and connectivity on all major serial networking levels like fast Ethernet, FireWire and USB as well as most state-of-the-art Fieldbus standards such as PROFIBUS™, CAN, Interbus-S, and LON.

FEATURES

Equipped with 32 or 64 MB SDRAM and 2 Mbit flash for the Phoenix BIOS, the ICP-K6 can be expanded using memory piggy-back modules providing up to 128 MB SDRAM and up to 144 MB DiskOnChip flash memories.

A 512 KB pipelined-burst static memory Level 2 cache is provided resulting in a performance improvement of up to 15%.

The ICP-K6 makes use of 3.3 V technology and split plane voltage CPU technology to minimize the system power requirement for high-performance computing.

The 166 MHz processor does not require cooling for heat-sink, while a CPU fan is provided for the processor operating at higher clock rate (> 166 MHz).

INTERFACING

For maximum communication flexibility, multiple interfaces satisfying different industrial standards are implemented.

LAN applications can take advantage of 10/100 BaseT/Tx Ethernet and fast Ethernet implementation or, if high-speed system level serial interfacing is required, the built-in 100 (400) Mbps FireWire port is available.

Peripherals may be connected to the standard USB or, as an option, RS-232-C, RS-485, CAN, PROFIBUS, LON, and Interbus-S piggy-back modules may be installed.

The Digital 21554 non-transparent PCI/PCI bridge is utilized for multiprocessing typically with the higher speed AMD K6-2 CPU cores.

FIELD BUS**CAN**

Equipped with a dedicated, on-board microcontroller for reception and transmission of CAN messages without host intervention, this piggy-back module provides CAN bus master functionality with a variety of application layer protocols transparent to the host.

Consisting of a powerful C167C microcontroller with integrated 82527 CAN controller, it interfaces the host via a 128 KB dual-ported memory area between the C167C, FLASH code and SRAM data area.

The firmware fully implements CANopen master or DeviceNet application layer protocols supporting transmission rates up to 1 Mbps.

The physical interface complies to the ISO 11898 standard.

PROFIBUS

Conforming to the EN 50170 standard, the PROFIBUS piggy-back module provides DP master (class 1) functionality by implementing the 2nd hardware layer to allow transmission rates up to 12 Mbps.

An opto-isolated RS-485 interface galvanically separates the PROFIBUS device connected to the front-panel 9-pin D-Sub connector.

INTERBUS-S

This piggy-back module provides an Interbus-S master based on the Motorola™ 68332 microcontroller that features a PCP interface, diagnostic functions, synchronization and hierarchical networks through the implementation of Generation 4 Phoenix Contact Firmware.

A 9-pin D-Sub connector on the front panel supports the opto-isolated RS-485 physical layer for 500 Kbps transmission speeds.

SOFTWARE**Microware™ OS-9™ x86**

Microware real-time operating system has a track record proven in the industrial/embedded market and has continued to provide reliable intelligence to sophisticated applications.

Microware OS-9 x86's flexibility, modularity and reliability in conjunction with a powerful I/O system, allow its use in I/O intensive applications.

SPECIFICATIONS

CPU

AMD's K6-2(E)

CPU Speed

166 to 450 MHz processors with split plane voltage technology

L2 Cache

512 KB, 8 ns synchronous, pipelined burst with extended cacheability

Memory

32/64 MB soldered synchronous DRAM. Optional piggy-back module provides additional 32/64 MB

BIOS-Flash

2 Mbit (on-board)

Flash-Disk

Disk-on-chip from 24 to 144 MB

BIOS

Standard Phoenix BIOS 4.0 Release 6.0 with menu-driven setup

Battery

Rechargeable lithium cell for RTC only

Bus Interface

CompactPCI bus: 33 MHz, 8-slot Master

Southbridge

M1543 Pentium/Pentium II chipset

Northbridge

M1531 CPU-to-PCI bridge, memory, cache and buffer controller

Multiprocessing

Digital 21554 non-transparent PCI/PCI bridge (optional) for multiprocessing operation

Graphics

Optional S3 dual-display Virge 2D/3D graphic accelerator with 4 MB SGRAM. Supports VGA connection on front panel.

Fieldbus

Piggy-back option providing support for CAN, PROFIBUS, Interbus-S, and LON (on request)

Protocols

CANopen, PROFIBUS DP, Interbus-S, DeviceNet, LonWorks (on request)

On-Board I/O

Serial COM 1 and COM 2, USB and FireWire, Standard/ Fast Ethernet 10/100 BaseT/Tx, SVGA

Front Panels

Extended front panel (4TE) provides: Ethernet, COM1, COM2, FireWire, USB, keyboard, PS-2 mouse.

Connectors

RJ45 (Ethernet), USB (USB), 6-pin FireWire (FireWire), 9/15-pin D-Sub (Fieldbus), 15-pin high-density D-Sub (SVGA).

Standard Operating Temperature

0 to +50°C

Extended Operating Temperature

-25 to +70°C (166 MHz version only)

Humidity

5 to 95% (noncondensing) at 40°C

Storage Temperature

-40 to +85°C

Conformance

- CompactPCI R2.1
- CSA
- FCC
- UL
- EN / IEC
- CE

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