Embedded Solutions

F7N - 3U/6U CompactPCI/PXI Pentium III SBC (Tualatin)

- **Tualatin Celeron/Pentium III up to 1.26GHz**
- **1-slot 32-bit CompactPCI system master**
- **PXI system controller**
- **512MB DRAM, CompactFlash**
- **Graphics controller/digital video output**
- **Gigabit Ethernet**
- **USB**
- **2 COMs, IDE, floppy, parallel keyboard/mouse via extension card**
- **On-board hard disk via extension card**
- **Extension kit for 6U systems**

Equipped with a Tualatin Celeron or Pentium III processor, the F7N is a powerful 3U CPU board based on Socket 370. Although offering a complete PC with additional industrial features, the board still needs only one slot on the backplane. It is a perfect match for any CompactPCI system as a system-slot card, with the system slot being placed either left or right in the enclosure.

For 6U CompactPCI and PXI systems the F7N is available with a special mounting kit including a 6U front panel. The board is provided with the 815G chip set, which contains an embedded graphics controller. The DVI interface allows for attachment of both advanced and legacy flat-panel displays and CRT monitors. The onboard USB port is a universal interface to a variety of peripheral devices (such as keyboard, mouse, printer, modem, or video camera). For high-speed networking, the F7N features a Gigabit Ethernet interface. All connections mentioned above are conveniently available at the card's front panel.

For mass storage, the F7N provides an Ultra ATA/66 EIDE interface, suitable for any EIDE hard disk and CD-ROM drive. An onboard CompactFlash slot allows use of silicon disks. The jumperless board can be used with a front-side bus clock of up to 133MHz.

Equipped with a PCI-bridge chip, the F7N offers a full CompactPCI interface for reliable system expansion.

Last but not least, the F7N's Phoenix BIOS was especially designed for embedded system applications.

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Technical Data

CompactPCI Bus
- 3U CompactPCI CPU board rev. 3.0 compliant
- 32-bit CompactPCI system slot functionality with 7 possible external loads due to PCI-to-PCI bridge
- PCI-to-PCI bridge
- Single-slot solution
- V(I/O): +5V (+3.3V on request)

CPU
- Celeron or Pentium III (Tualatin 0.13u) up to 1.26GHz
- 100/133MHz host frequency
- Socket 370

Graphics
- Integrated VGA graphics controller and TFT support
  · DVI-I connection at front panel
  · PanelLink (R) Digital technology
  · Maximum resolution: 1280 x 1024 true-color (or 1600 x 1200, 8-bit color)

Memory
- Up to 512MB DRAM
  · One 144-pin SO-DIMM socket for PC133, non ECC, unbuffered SDRAM
  · 133MHz memory bus frequency
- CompactFlash interface
  · Type I and Type II
  · True IDE

Interfaces
- Full-duplex 10/100/1000Base-TX PCI Ethernet controller
  · 82540 controller
  · RJ45 interface at front panel
  · Three display LEDs in RJ45 connector to signal LAN connection speed, LAN Link and Activity status
  · Supports network boot
- USB (Universal Serial Bus) interface
  · Conforming to UHCI 1.1
  · At front panel
  · Data throughput up to 12Mbits/s

PXI
- Two trigger lines compliant with PXI Specification

Mass Storage
- Fast IDE ports
  · One IDE hard-disk/CD-ROM port via 40-pin ribbon cable connector U-DMA66
  · One IDE port for local CompactFlash

I/O Extension
- 4/8HP I/O extension board F7E for standard interfaces at front panel
  · For expansion of F7N as a 2-slot 3U, or 1- or 2-slot 6U solution using a special mounting kit
  · COM1/COM2 serial (9-pin D-Sub)
  · Keyboard/mouse (PS/2)
  · LPT parallel (25-pin D-Sub) (only with 8HP I/O extension board)
  · U-DMA66 via 44-pin connector for onboard hard disk, via 40-pin connector for external hard disk
  · Floppy disk connection via 34-pin connector
  · Connection to F7N via 40-pin IDE and 26-pin LPC connectors
- I/O extension card AD52
  · For expansion of F7N as a 6U solution using a special mounting kit
  · Two serial interfaces (9-pin D-Sub), as RS232 COM1/COM2 or via serial interface adapters for flexible configuration as RS232..TTY
  · Keyboard/mouse (PS/2)
  · LPT parallel (26-pin connector)
  · Connection to F7N via 26-pin LPC connector

Miscellaneous
- Battery-backed real-time clock
- Integrated hardware monitor
- Reset button with "alive" LED at front panel
- Stand-alone operation possible with suitable MEN adapter

Electrical Specifications
- Supply voltage/power consumption:
  · +5V (4.85V..5.25V), 5.8A max. (PIII / Celeron 1.26GHz)
  · +3.3V (3.2V..3.4V), 2.4A max. (PIII 1.26GHz), 2.2A max. (Celeron 1.26GHz)
  · +12V (11.5V..12.5V), 0.45A max. (PIII / Celeron 1.26GHz)
  · F7E: +5V (4.85V..5.25V), 1.75A max. (+80°C)
- MTBF: 65,500h @ 50°C

Mechanical Specifications
- Dimensions: conforming to CompactPCI specification for 3U boards
- Weight:
  · F7N: tbd.
  · F7E I/O extension board (4HP): 138g (without hard disk)
  · F7N and AD52 with 6U front panel: tbd.

Environmental Specifications
- Temperature range (operation):
  · 0..+60°C
  · Industrial temperature range on request
  · Airflow: min. 10m³/h

Technical Data

- Temperature range (storage): -40..+85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/0.33ms, 6g/6ms
- Vibration: 1g/5..2,000Hz

Safety

- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

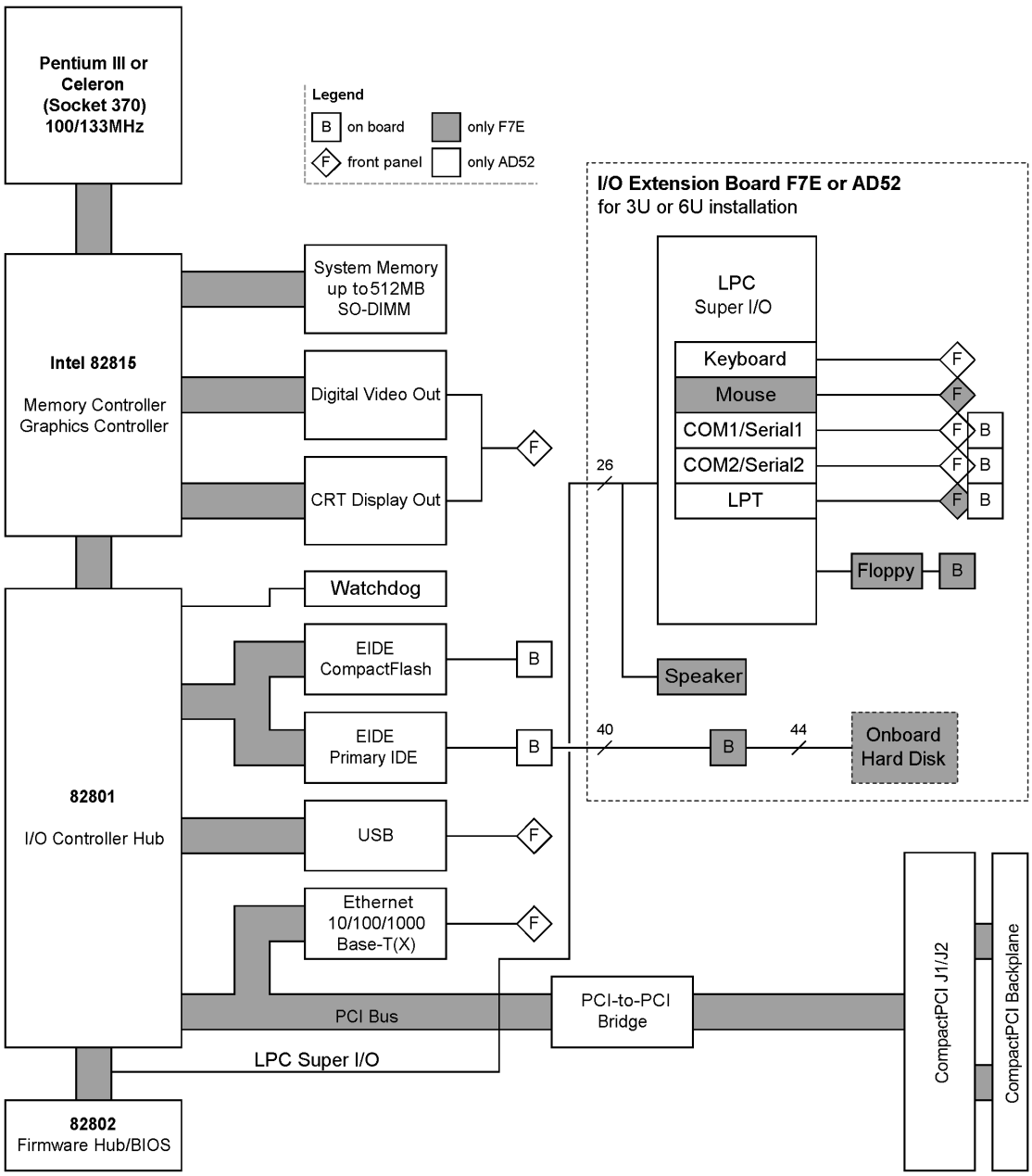
EMC

- Tested according to EN 55022 / 1999-05 (radio disturbance) and EN 55024 / 1999-05 (immunity) with regard to CE conformity

Software Support

- Phoenix BIOS for industrial applications
- Windows NT, Windows 2000/XP, Embedded Windows
- Linux (on request)
- VxWorks
- QNX (on request)
- RTX (on request)

Diagram


Pentium III or Celeron (Socket 370) 100/133MHz
Legend
B on board
F front panel
only F7E
only AD52
I/O Extension Board F7E or AD52
for 3U or 6U installation
Intel 82815
Memory Controller
Graphics Controller
System Memory up to 512MB SO-DIMM
Digital Video Out
CRT Display Out
LPC Super I/O
Keyboard
Mouse
COM1/Serial1
COM2/Serial2
LPT
Floppy
26
Speaker
Watchdog
EIDE CompactFlash
EIDE Primary IDE
40
44
Onboard Hard Disk
82801
I/O Controller Hub
USB
Ethernet 10/100/1000 Base-T(X)
PCI Bus
PCI-to-PCI Bridge
CompactPCI J1/J2
CompactPCI Backplane
LPC Super I/O
82802
Firmware Hub/BIOS

Related Products

Standard Hardware

02F007E06	F7E, I/O extension for F7N, keyboard/mouse, 2x serial, floppy, 3U/4HP (F7 system slot right or left), 0..+60°C
02F007E07	F7E, I/O extension for F7N, keyboard/mouse, 2x serial, floppy, 3U/4HP (F7 system slot right or left), -40..+85°C
02F007E08	F7E, I/O extension for F7N, keyboard, mouse, serial, parallel, floppy, 3U/8HP (F7 system slot right), 0..+60°C
02F007E09	F7E, I/O extension for F7N, keyboard, mouse, serial, parallel, floppy, 3U/8HP (F7 system slot right), -40..+85°C
02F007N00	F7N, CompactPCI/PXI 3U, single-board computer, Tualatin Celeron / 1.2GHz incl. passive heat sink, 0MB DRAM, Gigabit Ethernet, DVI graphics, USB, 0..+60°C
02F007N01	F7N, CompactPCI/PXI 3U, single-board computer, Tualatin Pentium III / 1.26GHz incl. passive heat sink, 0MB DRAM, Gigabit Ethernet, DVI graphics, USB, 0..+60°C

Please refer to our 3U CompactPCI compare chart for a selection of further single-board computers with different processors and on-board functionality.

Systems & Card Cages

Disk drives for basic systems are delivered as requested. Different rack sizes, power supplies and backplanes on request.

0701-0009	Abk13.10.04 - nur intern; Preis wird nicht erhBuy:offen fexistierende Kunden Last Delivery:offen fexistierende Kunden Name: B.Schmitz Grund: Ersatz-Standardsystem 0701-0021 kann falle 3U-Karten verwendet werden ----------CompactPCI 19" 3U rack-mount enclosure, 3U 7-slot CompactPCI backplane, ATX power supply
0701-0018	CompactPCI 19" 4U/84HP rack-mount enclosure for 3U cards (vertical), 8-slot 3U CompactPCI backplane, system slot right, no rear I/O, space for hard-disk drive, floppy drive, 300W ATX power supply wide range 100..240VAC on front, 1U fan tray included

Accessories

05A000-10	Keyboard/mouse Y-cable 0.1m, 6-pin Mini DIN plug to two 6-pin Mini DIN receptacles
05F007E00	Hard disk 2.5" installation kit for F7E

Related Products

05F007N00	6U mounting kit for assembly of F7N + AD52-04/..-05
05F007N01	6U mounting kit for assembly of F7N + AD52-06/..-07
05F007N02	6U 1-slot mounting kit for assembly of F7N + F7E
05F007N03	Stand-alone adapter for F7 and F7N
05F007-02	DVI-to-VGA cable, DVI plug to 15-pin HD-Sub plug, 2m, -40..+85°C
05F007-03	Adapter, DVI analog plug to VGA 15-pin HD-Sub receptacle, -20..+85°C
0501-0001	DVI-I to DVI-D and VGA Y-adapter cable (for example for D4, F7/N, F8, F9, P17)
You can download the data sheet for hard disk 0710-0012 from MEN's website.	
0710-0009	IDE hard disk 2.5", 9.5mm, 20GB; for mounting on-board (harddisk mounting kit may be additionally required)
0710-0012	Industrial IDE hard disk 2,5", 40GB, 24 hours/7 days, 0..+60°C; for on-board mounting (hard disk mounting kit may be required additionally)
0751-0006	CompactFlash card, 512MB, Type I, 0..+60°C
0751-0007	CompactFlash card, 512MB, Type I, -40..+85°C
0751-0008	CompactFlash card, 64MB, Type I, 0..+60°C
0751-0009	CompactFlash card, 128MB, Type I, 0..+60°C
0751-0012	CompactFlash card, 256MB, Type I, 0..+60°C
0751-0013	Compact Flash card, 64MB, -40..+85°C
0751-0014	Compact Flash card, 128MB, -40..+85°C
0751-0018	CompactFlash card, 256MB, Type I, -40..+85°C
0752-0044	256MB DRAM 0..+60°C for 02F007N01
0752-0081	256MB DRAM 0..+60°C for 02F007N00
0752-0094	512MB DRAM 0..+60°C for 02F007N01
0752-0152	512MB DRAM 0..+60°C for 02F007N00
08AD52-04	AD52, adapter for F7N: 2x RS232, keyboard/mouse, temperature range: 0..+60°C
08AD52-05	AD52, adapter for F7N: 2x RS232, keyboard/mouse, temperature range: -40..+85°C
08AD52-06	AD52, adapter for F7N: 2x SA-adapter slots, keyboard/mouse, temperature range: 0..+60°C
08AD52-07	AD52, adapter for F7N: 2x SA-adapter slots, keyboard/mouse, temperature range: -40..+85°C

Related Products

08SA01-00	Serial interface adapter, RS232, not optically isolated, 0..+60°C
08SA02-00	Serial interface adapter, RS422/485, half duplex, optically isolated, 0..+60°C
08SA02-01	Serial interface adapter, RS422/485, full duplex, optically isolated, 0..+60°C
08SA02-07	Serial interface adapter, RS422/485, full duplex, optically isolated, temperature range: -40..+85°C
08SA03-00	Serial interface adapter, RS232, optically isolated, 0..+60°C
08SA03-01	Serial interface adapter, RS232, optically isolated, -40..+85°C
08SA04-00	Serial interface adapter, TTY, optically isolated, 0..+60°C

For more functions realized with SA adapters, see the listing on MEN's website. You can also view our SA adapter compare chart for a quick overview of different functions. Please contact sales to make sure that these SA adapters can be used in the board configuration you are looking for.

Software

10F007N61	VxWorks 5.5 / Tornado 2.2 BSP for MEN F7N/F7
10F007N70	Windows 2000/XP Driver Package for MEN's F7N

This MEN board is designed to work in a Microsoft Windows environment. For additional Windows driver packages provided or recommended by MEN please refer to the ordering numbers below.

This board is an MEN product running Sysgo's ELinOS Embedded Linux. Sysgo provides full support for MEN hardware. Please contact www.sysgo.de.

QNX software for this MEN board is available from QNX (www.qnx.com). For QNX BSP and driver support provided by MEN please refer to the ordering numbers below.

VxWorks software for this MEN board is available from WindRiver Systems. For VxWorks BSP and driver support provided by MEN please refer to the ordering numbers below.

This board is an MEN product running Linux. For Linux BSP and driver support provided by MEN please refer to the ordering numbers below.

To use MDIS4 low-level drivers, you also need one of the MDIS4 system packages available for Windows, Linux, VxWorks, QNX, RTX or OS-9 (MDIS4 = MEN Driver Interface System).

13Z011-06	MDIS4/2004 low-level driver sources for F7/F7N/D4/EM02 watchdog
13Z011-70	MDIS4/2004 Windows NT4/W2K driver for F7/F7N/D4/EM02 watchdog

Documentation

20ABMX-00	Phoenix BIOS user manual

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Related Products

20APPN001	Application Note: Using MEN +5V CompactPCI Boards with +3.3V V(I/O)
20F007N00	F7N user manual

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the F7N online data sheet under www.men.de. --> Click here!

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