

F26L

Embedded Single Board Computer with Intel Apollo Lake-I 3U CompactPCI PlusIO

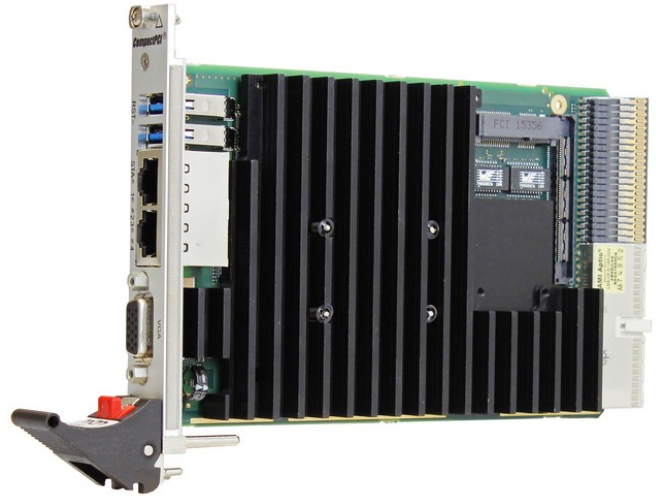
- » Intel E3900 series CPU with up to four cores
- » Up to 8 GB DDR3 RAM soldered, ECC
- » For CompactPCI 2.0 systems or CompactPCI PlusIO 2.30 hybrid systems (2.0 and CPCI-S.0)
- » CPU TDP 6.5 W to 12 W
- » Front I/O: 2 Gb Ethernet, 2 USB 3.0, 1 VGA
- » Rear I/O: 2 Gb Ethernet, 4 PCIe x1, 4 USB 2.0
- » microSD card and mSATA slots
- » Trusted Platform Module (TPM)
- » Side card connector for high flexibility and interface extensions
- » Up to -40°C to +85°C screened

Low-Power Intel Atom CPU

The F26L low-power CPU board is a member of the scalable family of Intel CPU boards which ensures future-safety and long-term availability. It is equipped with an Intel Atom Apollo Lake-I dual-core or quad-core System-on-a-Chip (SoC). Due to the low power architecture on the Intel Atom processor, the CPU card has a total power consumption of max. 6.5 Watts to 12 Watts, while having a clock frequency of up to 1.6 GHz. An excellent graphics performance, thermal supervision of the processor and a watchdog for the operating system top off the functionality of the F26L. Furthermore, a Trusted Platform Module is assembled for security purposes.

Designed for Extreme Temperatures

The CompactPCI PlusIO board has been designed for applications with extreme temperatures, where high reliability and long-term availability are essential requirements. This kind of application is common in the rail market, in industrial automation and in the power and energy sector, for example. To fulfill these extreme temperature requirements, the F26L has been equipped with a specially outlined heat sink, which efficiently takes away the heat from the board.



CompactPCI PlusIO (PICMG 2.30)

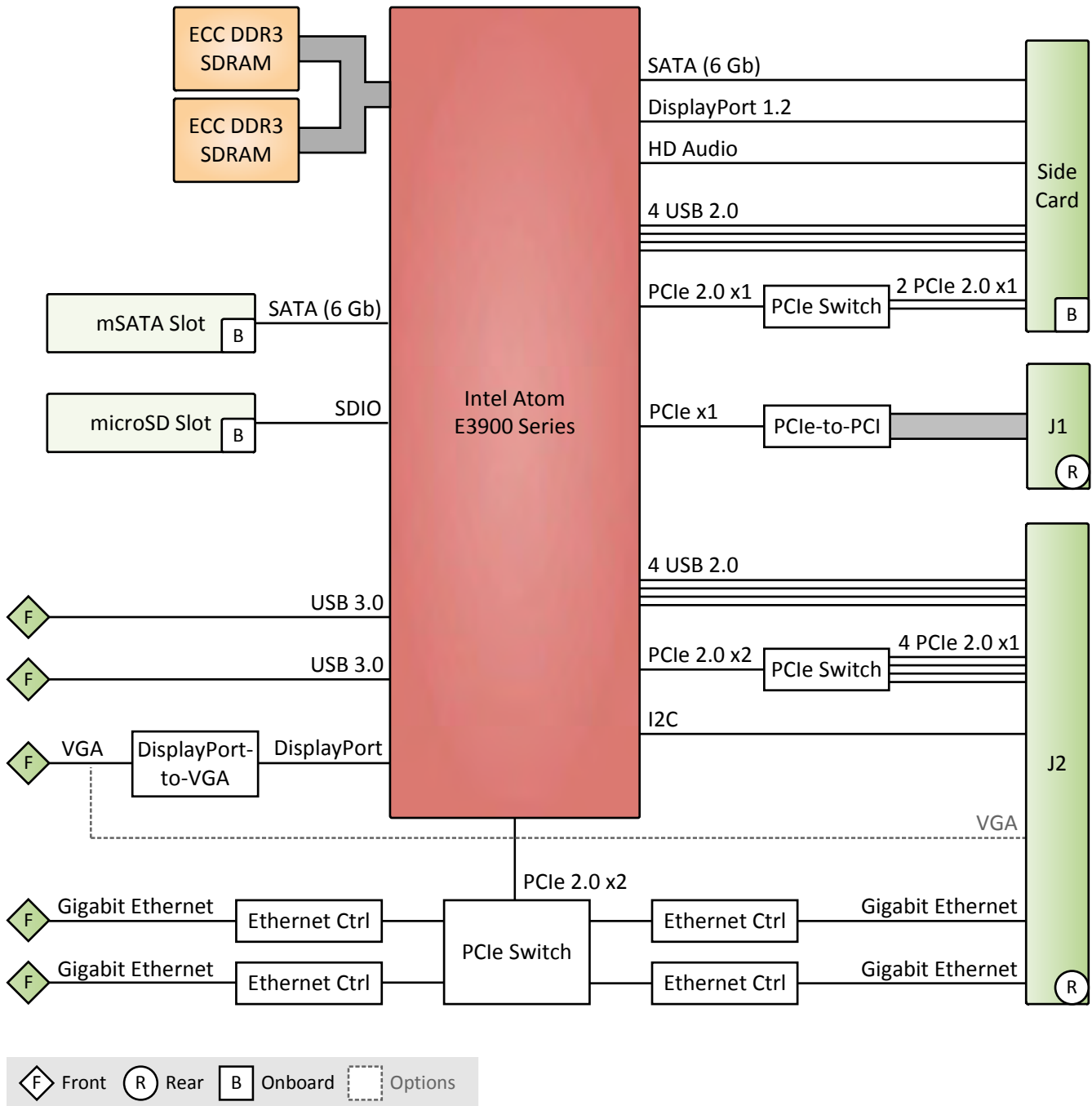
The F26L supports the CompactPCI PlusIO (PICMG 2.30) specification, meaning it can be used in a hybrid system for control of both CompactPCI and CompactPCI Serial peripheral boards. Compliant to the standard, four USB 2.0, four PCI Express x1 as well as two Gigabit Ethernet interfaces are accessible on the J2 rear I/O connector.

Versatile Front I/O

The standard I/O available at the front panel of the F26L includes VGA, two Gigabit Ethernet and two USB 3.0 ports. The F26L can be extended by different side cards. Additional functions include a variety of different UARTs or another four USBs, SATA for hard disk connection and HD audio.

Linux and Windows Support

The F26L operates in Windows 10 and Linux environments as well as under real-time operating systems that support Intel's multi-core architecture. The AMI UEFI BIOS was specially designed for embedded system applications.



CPU

- The following CPU types are supported:
 - Intel Apollo Lake-I E3930 Entry, 2 cores, 1.3 GHz
 - Intel Apollo Lake-I E3940 Intermediate, 4 cores, 1.6 GHz
 - Intel Apollo Lake-I E3950 High, 4 cores, 1.6 GHz
- Intel Virtualization Technology (Intel VT)
 - VT-d
 - VT-x

Security

- Trusted Platform Module (TPM 2.0)

Memory

- System RAM
 - Soldered DDR3, ECC support
 - 4 GB or 8 GB
- Boot Flash
 - 16 MB

Mass Storage

- The following mass storage devices can be assembled:
 - microSD card
 - mSATA disk

Front Interfaces

- Video
 - One VGA connector
 - The front channel can optionally be led to the backplane
- USB
 - Two Type A connectors, USB 3.0
- Ethernet
 - Two RJ45 connectors, 100/1000BASE-T, or
 - Two 4-pin M12 connectors, D-coded, 100BASE-T (8 HP front panel), or
 - Two 8-pin M12 connectors, X-coded, 100/1000BASE-T (8 HP front panel), or
 - Two 8-pin M12 connectors, A-coded, 100/1000BASE-T (8 HP front panel)
 - Four link and activity LEDs (two per channel)
- Status LED
- Reset button

Onboard Interfaces

- An onboard connector allows a side card to be plugged onto the CPU board to add front panel connections or mass storage devices. A range of standard side cards is available to implement the following functions.
- SATA
 - One channel, SATA Revision 3.x
- Video
 - One DisplayPort channel
- Audio
 - One HD Audio channel
- USB
 - Four channels, USB 2.0
- PCI Express
 - Two x1 links, PCIe 2.0

Rear Interfaces

- USB
 - Four channels, USB 2.0
- Ethernet
 - Two channels, 100/1000BASE-T
- PCI Express
 - Four x1 links, PCIe 2.0
- I2C
 - One interface
- Compatible with PICMG 2.30 CompactPCI PlusIO
 - 1PCI33/4PCIE2.0/0SATA/4USB2/2ETH1G

Supervision and Control

- Board controller
- Watchdog timer
- Temperature measurement
- Real-time clock with supercapacitor or battery backup

Backplane Standard

- Compliance with CompactPCI Core Specification PICMG 2.0 R3.0
- System slot
- 32-bit/33-MHz CompactPCI bus
- V(I/O): +3.3 V (+5 V tolerant)

Electrical Specifications

- Supply voltage
 - +5 V (-3%/+5%)
 - +3.3 V (-3%/+5%)
 - +12 V (-10%/+10%)
 - The board can be supplied with +5V only, all other voltages are generated onboard.
- Power consumption
 - 12 W max.

Mechanical Specifications

- Dimensions
 - 3U, 4 HP, or
 - 3U, 8 HP
- Weight
 - 350 g (model 02F026L00)

Environmental Specifications

- Temperature range (operation)
 - -40°C to +85°C, compliant with EN 50155, class TX
- Temperature range (storage): -40°C to +85°C
- Cooling concept
 - Air-cooled, airflow 1.5 m/s (model 02F026L00), or
 - Natural convection (model 02F026L01)
 - Conduction-cooled in MEN CCA frame
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300 m to +3000 m
- Shock: EN 50155 (12.2.11) / EN 61373 category 1 class B body mounted
- Vibration: EN 50155 (12.2.11) / EN 61373 category 1 class B body mounted

Reliability

- MTBF: 365 000 h @ 40°C according to IEC/TR 62380 (RDF 2000)

Safety

- Electrical Safety
 - EN 62368-1 (former EN 60950-1)
- Flammability (PCBs)
 - UL 94 V-0

EMC

- EN 55022 (radio disturbance)
- IEC 61000-4-2 (ESD)
- IEC 61000-4-3 (electromagnetic field immunity)
- IEC 61000-4-4 (burst)
- IEC 61000-4-5 (surge)
- IEC 61000-4-6 (conducted disturbances)

BIOS

- AMI Aptio UEFI Firmware

Software Support

- Linux
- Windows 10
- VxWorks (on request)
- QNX (on request)
- For more information on supported operating system versions and drivers see Software.

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www.men.de/products/f26l/

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