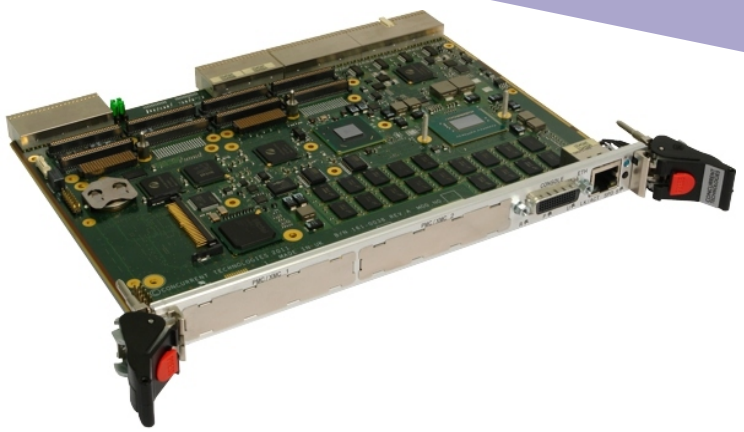
CompactPCI

PP 91x/x1x

N, E, K - Series

3rd Generation Intel® Core™ Processor Single/Dual PMC/XMC Carrier



APPLICATIONS

The PP 91x/x1x is a PC-compatible, high performance, high functionality, CompactPCI® board supporting the 3rd generation Intel® Core™ processors and the Mobile Intel® QM77 Express Chipset with up to 16 Gbytes of DDR3-1600 ECC DRAM. This single slot board features one or two PMC/XMC sites and a variety of interfaces including an option for an on-board 2.5-inch SATA drive and CompactFlash™. The PP 91x/x1x will operate in a system slot, a peripheral slot or independently from the CompactPCI bus. System networking is provided by up to four Gigabit Ethernet links, and the board is compliant to the PICMG® 2.16 specification. Many suitable industry standard operating systems are supported. The board is plug compatible with the popular PP 81x/x9x and PP 712/08x families. The PP 91x/x1x is suitable for a range of applications within the industrial control, telecomms, telemetry, scientific and aerospace markets.

HIGHLIGHTS

- 3rd generation Intel® Core™ processor:
  - 4-core 2.3 GHz Intel Core i7-3615QE processor
  - 4-core 2.1 GHz Intel Core i7-3612QE processor
  - 2-core 2.5 GHz Intel Core i7-3555LE processor
  - 2-core 1.7 GHz Intel Core i7-3517UE processor
- Up to 16 Gbytes of DDR3-1600 DRAM with ECC
- Up to 4 x external SATA interfaces plus optional on-board 2.5-inc SATA600 drive
- Onboard CompactFlash™ site
- Single or dual PMC/XMC site with front and rear I/O:
  - each PMC site 64-bit; 133MHz PCI-X
  - one XMC interface is x8 PCI Express® and the other is x4 PCI Express
  - optional Pn6 to Pn6 high speed interconnection bus
- Up to 4 x 10/100/1000Mbps Ethernet interfaces:
  - dual Gigabit Packet Switching Backplane (PICMG 2.16)
- Graphics interfaces via front panel:
  - dual DVI-D interfaces
  - analog video interface
- 2 x serial channels and 5 x USB 2.0 interfaces
- Up to 4 x USB 3.0 interfaces
- High definition stereo audio
- CompactPCI® controller:
  - operates in system slot or peripheral slot
  - 32/64-bit at 33/66 MHz CompactPCI interface
  - tightly coupled to processor
- Option to disable CompactPCI bus (Satellite Mode)
- IPMI (Intelligent Platform Management Interface):
  - PICMG 2.9 (System Management Specification)
- Watchdog timer and Long Duration Timer
- 8 Mbytes of BIOS Flash EPROM
- Extended temperature versions (E-Series, K-Series):
  - E: -25°C to +70°C, air-cooled
  - K: -40°C to +85°C, humidity sealant, air-cooled
- Support for Linux®, Windows® 7, Windows® Embedded Standard 7, Windows® XP, Windows® XP Embedded, Windows® Server 2003, Windows® Server 2008 and VxWorks®
- Rear I/O compatibility with the popular PP 81x/x9x and PP 712/08x families

CONCURRENT TECHNOLOGIES

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Specification

Central Processor
- 3rd generation Intel® Core™ processors:
  - → 4-core 2.3 GHz Intel Core i7-3615QE processor
  - → 4-core 2.1 GHz Intel Core i7-3612QE processor
  - → 2-core 2.5 GHz Intel Core i7-3555LE processor
  - → 2-core 1.7 GHz Intel Core i7-3517UE processor
  - → up to 6 Mbytes of shared Last-Level cache
- utilizes Mobile Intel® QM77 Express Chipset

DRAM
- up to 16 Gbytes DDR3-1600 ECC DRAM:
  - → soldered
  - → single bit error correction
  - → peak bandwidth of 25 Gbytes/s
  - → dual channel architecture
- accessible from processor and CompactPCI® bus

Mass Storage Interfaces
- 1 x EIDE interface supports on-board CompactFlash™ socket via SATA converter
- up to 4 x external SATA interfaces
- optional on-board 2.5 inch SATA600 mass storage
- optional USB Flash disk on Transition Module

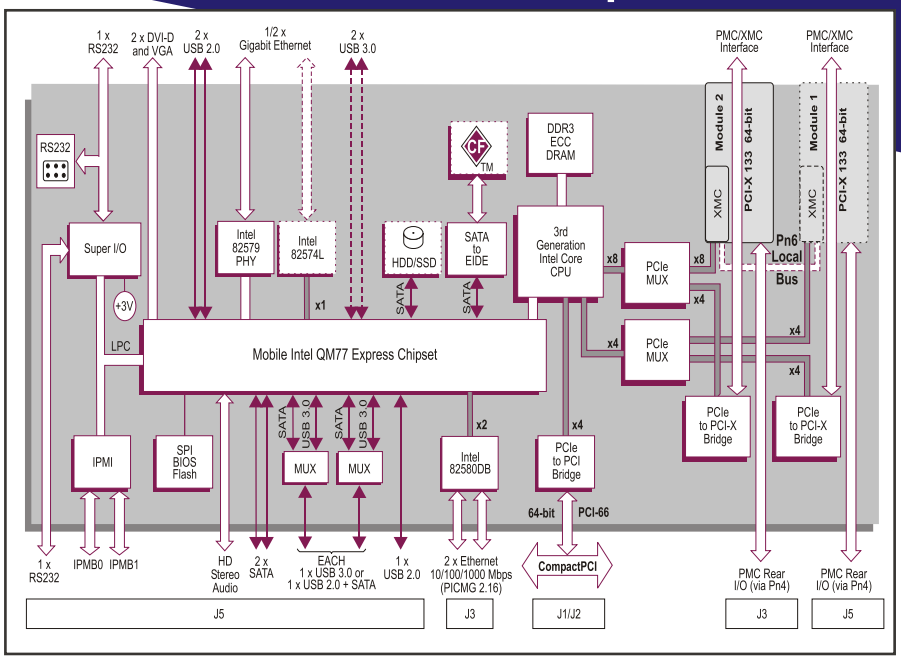
Ethernet Interfaces
- up to 4 x Gigabit Ethernet interfaces
- front panel:
  - → 1x interface implemented by Intel® 82579 via x1 PCI Express® link via RJ45
  - → 1x interface (optional) implemented by Intel® 82574L via x1 PCI Express link via RJ45 (uses PMC/XMC site1)
- 2 x rear interfaces implemented by Intel® 82580DB controller via x2 Gen 2 PCI Express link:
  - → support for PICMG® 2.16 R1.0 - Packet Switching Backplane (option)
- supports 10 Base-T, 100 Base-TX, 1000 Base-T

PMC/XMC Interfaces
- build option for 1 or 2 PMC/XMC sites:
  - → front panel I/O
  - → Pn4 rear I/O via J3 or via J3 and J5
- PMC interface(s) support:
  - → 32/64-bit, 33/66MHz PCI bus
  - → 64-bit PCI-X bus up to 133MHz
  - → 5V and 3.3V signaling
- XMC interface(s) support:
  - → site 1 supports x4 PCI Express
  - → site 2 supports x8 PCI Express
  - → both sites support Gen 1 and Gen 2
  - → XMC sites powered from 5V supply
  - → optional Pn6 to Pn6 high speed interconnection bus

Serial Interfaces
- 2 x RS232 serial channels:
  - → 1 x Tx/Rx channel accessed via a 60-way high-density connector on front panel
  - → 1 x Tx/Rx channels via Transition Module
- 16550 compatible UARTs
- front panel and rear panel supports RI, CTS, RTS, DSR, DTR and DCD

Stereo Audio
- Intel® High Definition Audio via J5:
  - → optional codec module on Transition Module

Graphics Interface
- implemented by the integrated chipset graphics controller
- 2 x digital DVI-D and 1 x analog VGA via front panel:
  - → digital, up to 1600 x 1200 or 1920 x 1080
  - → analog, up to 1920 x 1200
  - → up to 32-bit color depth
- support for Microsoft® DirectX 10
- support for OpenGL 2.0, Windows® and Linux®
- accessed via 60-way high-density connector



Other Peripheral Interfaces
- PC Real Time Clock
- watchdog timer; 32-bit Long Duration Timer with processor interrupt ability; chipset timer
- system fan monitor; CPU temperature monitor; voltages monitor; all accessible via IPMI
- 5 x USB 2.0 interfaces:
  - → 2 accessed via a 60-way high-density connector on front panel
  - → 3 interfaces accessed via J5
- up to 4 x USB 3.0 ports:
  - → build option for 2 x USB 3.0 ports via standard USB 3.0 type A connectors (uses PMC/XMC site1)
  - → up to 2 x USB 3.0 via J5
- independent legacy speaker output via J3

Software Support
- support for Linux®, Windows® 7, Windows® Embedded Standard 7, Windows® XP, Windows® XP Embedded, Windows® Server 2003, Windows® Server 2008 and VxWorks®

Firmware Support
- Insyde Software InsydeH20™ BIOS:
  - → includes Compatibility Support Module
- based upon Intel® Platform Innovation Framework for EFI
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

SPI Flash EPROM
- dual 8 Mbytes of BIOS SPI Flash EPROM

IPMI
- PICMG 2.9 R1.0 (System Management Spec.):
  - → implements the IPMB0 interface
  - → implements an IPMB1 interface
- on-board Baseboard Management Controller
- supports 8 Kbytes of non-volatile memory

CompactPCI Interface
- compliant with PICMG 2.0 R3.0; 3.3V or 5V signaling levels (universal signaling support)
- 33/66 MHz, 32/64-bit interface accessed via J1/J2 connectors
- tightly coupled to processor
- J4 connector not fitted
- PICMG 2.1 R2.0 Hot Swap compliant
- operates as System Slot controller or in a Peripheral slot
- option to disable CompactPCI interface (Satellite Mode):
  - → receives power from CompactPCI bus
  - → board can be hot swapped

Safety
- PCB (PWB) manufactured with a flammability rating of 94V-0

Electrical Specification
- typical current figures with 2.3 GHz Core i7-3615QE CPU, 8 GBytes DRAM:
  - → +5V @ 5.5A
  - → +3.3V @ 5.9A
- +12V and -12V not required, but are routed to PMC/XMC slots

Environmental Specification
- operating temperatures:
  - → 0°C to +55°C (N-Series)
  - → -25°C to +70°C (E-Series: 2-core 1.7 GHz, 2-core 2.5 GHz or 4-core 2.1 GHz)
  - → -40°C to +70°C (K-Series: 2.5 GHz)
  - → -40°C to +85°C (K-Series: 1.7 GHz)
- storage temperature: -40°C to +85°C
- 5% to 95% Relative Humidity, non condensing (operating or storage):
  - → K-Series includes humidity sealant

Mechanical Specification
- 6U form-factor: 9.2 inches x 6.3 inches (233mm x 160mm)
- single slot: 0.8 inches (20.3mm)
- connectors: IEC-1076-4-101 for J1-J5
- operating shock: 20g, 11ms, ½ sine

ORDERING INFORMATION

Order Number	Product Description (Hardware)
PP 91x/m1x-yz	3rd generation Intel Core i7 SBC where m = 0 for dual PMC/XMC sites, m = 4 for single PMC/XMC site

For the order number suffix (yz) options please contact your local sales office:

where y = I/O	where z = DRAM size
y - rear Ethernet configuration and Pn6 option	z - up to 16 Gbytes DRAM

Datasheet Code 1710/0213