» User Guide «

CP6003-SA

6U CompactPCI Processor Board based on the 2nd Generation Intel® Core™ i7/i5 Processor with the Intel® QM67 Express Chipset

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Table of Contents

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List of Tables

List of Figures

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Please refer also to the section “High Voltage Safety Instructions” on the following page.

Warning, ESD Sensitive Device!

This symbol and title inform that electronic boards and their components are sensitive to static electricity. Therefore, care must be taken during all handling operations and inspections of this product, in order to ensure product integrity at all times.

Please read also the section “Special Handling and Unpacking Instructions” on the following page.

Warning!

This symbol and title emphasize points which, if not fully understood and taken into consideration by the reader, may endanger your health and/or result in damage to your material.

Note ...

This symbol and title emphasize aspects the reader should read through carefully for his or her own advantage.

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High Voltage Safety Instructions

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Serious electrical shock hazards can exist during all installation, repair and maintenance operations with this product. Therefore, always unplug the power cable and any other cables which provide external voltages before performing work.

Special Handling and Unpacking Instructions

ESD Sensitive Device!

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Do not handle this product out of its protective enclosure while it is not used for operational purposes unless it is otherwise protected.

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In order to maintain Kontron's product warranty, this product must not be altered or modified in any way. Changes or modifications to the device, which are not explicitly approved by Kontron and described in this manual or received from Kontron's Technical Support as a special handling instruction, will void your warranty.

This device should only be installed in or connected to systems that fulfill all necessary technical and specific environmental requirements. This applies also to the operational temperature range of the specific board version, which must not be exceeded. If batteries are present, their temperature restrictions must be taken into account.

In performing all necessary installation and application operations, please follow only the instructions supplied by the present manual.

Keep all the original packaging material for future storage or warranty shipments. If it is necessary to store or ship the board, please re-pack it as nearly as possible in the manner in which it was delivered.

Special care is necessary when handling or unpacking the product. Please consult the special handling and unpacking instruction on the previous page of this manual.

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Kontron grants the original purchaser of Kontron's products a ***TWO YEAR LIMITED HARDWARE WARRANTY*** as described in the following. However, no other warranties that may be granted or implied by anyone on behalf of Kontron are valid unless the consumer has the express written consent of Kontron.

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Chapter 1

Introduction

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1. Introduction

1.1 Board Overview

The CP6003-SA (Standard Air-Cooled) is a highly integrated 6U CompactPCI system controller board based on the 2nd generation Intel® Core™ i7 and i5 processors combined with the mobile Intel® QM67 Express chipset.

The board supports the 2nd generation, quad-core Intel® Core™ i7-2715QE processor with 2.1 GHz, the 2nd generation, dual-core, low-voltage Intel® Core™ i7-2655LE processor with 2.2 GHz, and the 2nd generation, dual-core Intel® Core™ i5-2515E processor with 2.5 GHz. All processors are built on 32-nm technology and provided in a BGA package.

Two SODIMM sockets are available on the CP6003-SA to provide up to 16 GB dual-channel, third-generation Double Data Rate (DDR3) memory with Error Checking and Correction (ECC) running at 1333 MHz. The graphics controller and the memory controller are integrated in the processor. Furthermore, either one 2.5" HDD/SSD or up to 32 GB NAND flash memory (SSD) via a SATA Flash module can be integrated into the CP6003-SA.

For maximum application flexibility, the CP6003-SA comes with an extensive range of interfaces such as up to five Gigabit Ethernet ports (three on front I/O and two on rear I/O in compliance with PICMG 2.16), three high-resolution graphics interfaces (VGA, 2 x HDMI/DVI), two COM ports (RS-232 on front and rear I/O, RS-422 on rear I/O), and six SATA interfaces with RAID 0/1/5/10 functionality, one for the onboard SATA connector, one for the SATA Flash module or the 2.5" HDD/SSD, and four for rear I/O. In addition, six USB 2.0 ports are available on the board, two on front I/O and four on rear I/O.

Support for one PMC/XMC module ensures individual system expansion either via one 64-bit/66 MHz PCI or 64-bit/133 MHz PCI-X PMC interface or via one XMC interface utilizing a x8 lane PCI Express 2.0 interconnection.

The board supports a configurable 64-bit/66 MHz PCI or PCI-X hot swap CompactPCI interface. When installed in the system slot, the interface is enabled, and when installed in a peripheral slot, the CP6003-SA is isolated from the CompactPCI bus.

Safety and security features via a Trusted Platform Module (TPM) 1.2 are provided on request. Intelligent Platform Management Interface (IPMI) is supported as well.

Designed for stability, the board fits into applications situated in industrial environments, including I/O intensive applications where only one slot is available for the CPU, making it a perfect core technology for long-life applications. Components with high temperature tolerance have been selected from embedded technology programs, and therefore offer long-term availability.

The board is offered with various Board Support Packages including Windows, VxWorks and Linux operating systems. For further information concerning the operating systems available for the CP6003-SA, please contact Kontron.

1.2 Board-Specific Information

The CP6003-SA is a CompactPCI single-board computer based on the 2nd generation Intel® Core™ i7 and i5 processors and specifically designed for use in highly integrated platforms with solid mechanical interfacing for a wide range of industrial environment applications.

Some of the CP6003-SA's outstanding features are:

- Support for the following 2nd generation processors:
  - Quad-core Intel® Core™ i7-2715QE (SV), 2.1 GHz, 6 MB L3 cache
  - Dual-core Intel® Core™ i7-2655LE (LV), 2.2 GHz, 4 MB L3 cache
  - Dual-core Intel® Core™ i5-2515E (SV), 2.5 GHz, 3 MB L3 cache
- Intel® QM67 Express chipset
- Up to 16 GB, dual-channel, DDR3 SDRAM memory with ECC running at 1333 MHz on two SODIMM sockets
- Integrated 3D high-performance graphics controller with three high-resolution graphics interfaces (VGA / 2 x HDMI/DVI)
- 64-bit/66 MHz PCI or PCI-X CompactPCI interface (PICMG 2.0)
- One PMC slot with PCI functionality and with rear I/O support; 64-bit/66 MHz PCI interface or 64-bit/133 MHz PCI-X interface
- One XMC slot utilizing a x8 lane PCI Express 2.0 interconnection
- Five Gigabit Ethernet interfaces:
  - Three Gigabit Ethernet interfaces on front I/O
  - Two Gigabit Ethernet interfaces on rear I/O (PICMG 2.16)
- Two Gigabit Ethernet (GbE) controllers:
  - One Intel® 82579LM Gigabit Ethernet controller connected to one GbE port on the front panel
  - One Intel® 82580EB Quad Gigabit Ethernet controller connected to two GbE ports on the front panel and two GbE ports on the rear I/O
- Six Serial ATA interfaces with SATA RAID 0/1/5/10 support:
  - One onboard SATA 6 Gb/s interface for the standard SATA onboard connector
  - One onboard SATA 6 Gb/s interface for either one Serial ATA Flash module or one Serial ATA 2.5" hard disk drive (HDD) / solid state drive (SSD)
  - Four SATA 3 Gb/s interfaces on the rear I/O
- Six USB ports:
  - Two USB 2.0 ports on the front panel
  - Four USB 2.0 ports on the rear I/O
- Two COM ports:
  - One RS-232 COM port either on the front panel or on the rear I/O (COMA)
  - One RS-422 COM port on the rear I/O (COMB)
- TCG 1.2 compliant Trusted Platform Module (TPM), on request
- Two SPI boot flashes to provide firmware redundancy:
  - One standard SPI boot flash
  - One recovery SPI boot flash
- Watchdog timer
- Battery-backed real-time clock (RTC)
- Three onboard DIP switches for board configuration
- Supports PICMG Packet Switching Backplane Specification 2.16
- IPMI support
- 4HP, 6U CompactPCI
- Passive heat sink solution for forced-airflow cooling
- Rear I/O on J3 and J5; optionally on J4 for PMC/XMC only
- Hot swap capability: as system controller or as peripheral device
- AMI Aptio®, a uEFI-compliant platform firmware

1.3 System Expansion Capabilities

1.3.1 PMC Module

The CP6003-SA has a 3.3V, rear I/O capable PMC mezzanine interface configurable for either 64-bit/66 MHz PCI or 64-bit/133 MHz PCI-X operation. This interface supports a wide range of PMC modules with PCI interface including all of Kontron's PMC modules and provides an easy and flexible way to configure the CP6003-SA for various application requirements. For information on the PMC interface, refer to chapter 2.10.8, "PMC Interface".

1.3.2 XMC Module

The CP6003-SA has one XMC mezzanine interface for support of x1, x4 and x8 PCI Express 2.0 XMC modules providing an easy and flexible way to configure the CP6003-SA for various application requirements. For information on the XMC interface, refer to chapter 2.10.9, "XMC Interface".

1.3.3 CP6003-SA-MK2.5SATA Assembly Kit

The CP6003-SA comes with an optional CP6003-SA-MK2.5SATA assembly kit comprised of one MMADP-SATA01 module and the necessary components needed for mounting the module on the CP6003-SA. The MMADP-SATA01 module is required for connecting an onboard 2.5" Serial ATA HDD or SSD to the CP6003-SA via an onboard SATA extension connector. For further information concerning the MMADP-SATA01 module, please refer to Appendix A.

1.3.4 SATA Flash Module

The CP6003-SA provides support for up to 32 GB NAND flash memory in combination with an optional SATA Flash module, which is connected to the CP6003-SA via an onboard SATA extension connector. For further information concerning the SATA Flash module, please refer to Appendix B.

1.3.5 Rear I/O Module

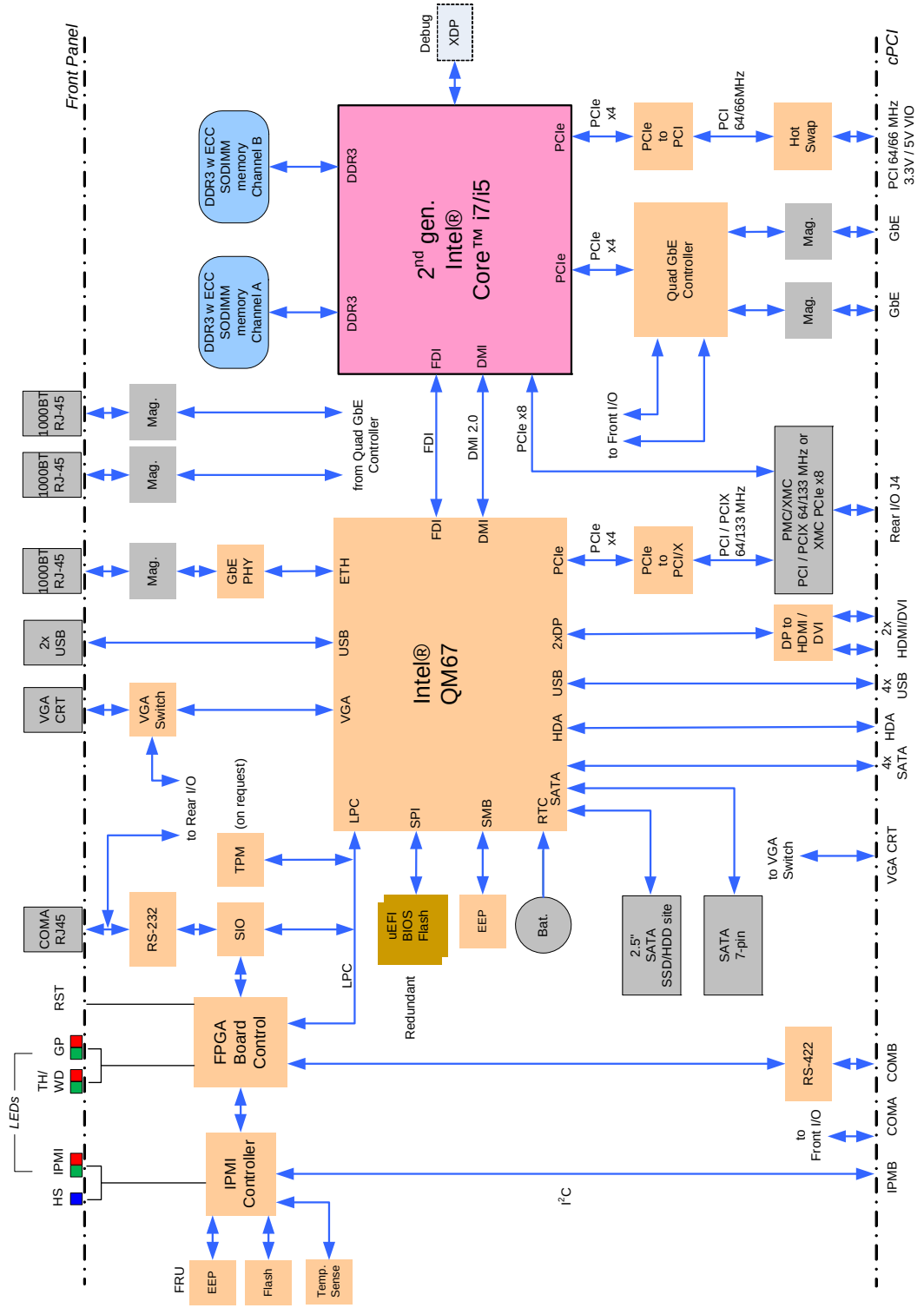
The CP6003-SA provides support for one rear I/O module via the CompactPCI rear I/O connectors. For further information about the compatibility of rear I/O modules with the CP6003-SA, please refer to the CP6003-SA datasheet.

1.4 Board Diagrams

The following diagrams provide additional information concerning board functionality and component layout.

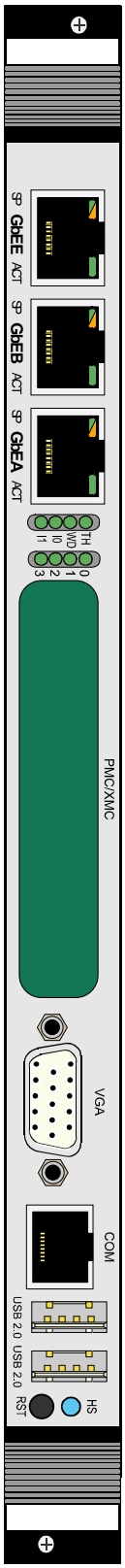
1.4.1 Functional Block Diagram

Figure 1-1: CP6003-SA Functional Block Diagram



1.4.2 Front Panels

Figure 1-2: CP6003-SA Front Panel



Legend:

IPMI LEDs

I0/I1 (red/green): Indicate the software status of the IPMI controller

Status LEDs

WD (green): Watchdog Status

TH (red/green): Temperature Status

HS (blue): Hot Swap Control

General Purpose LEDs

LED 0..3 (red/green/amber): General Purpose/POST code

Integral Ethernet LEDs

ACT (green): Ethernet Link/Activity

SPEED (green/orange/off): Ethernet Speed

Note ...

If the General Purpose LEDs are lit red during boot-up, a failure is indicated before the uEFI BIOS has started.

For further information, please contact Kontron.

1.4.3 Board Layout

Figure 1-3: CP6003-SA Board Layout – Top View

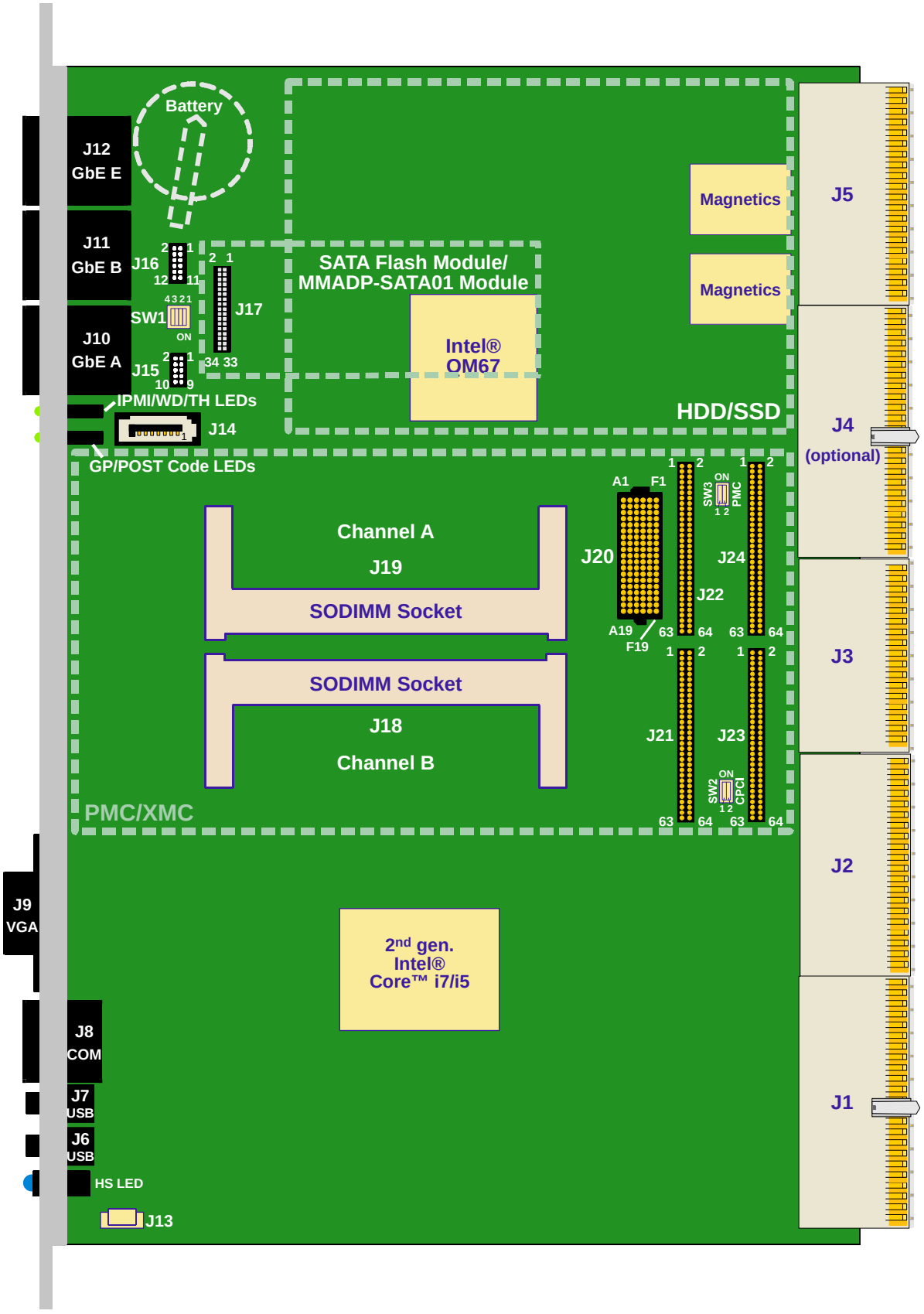
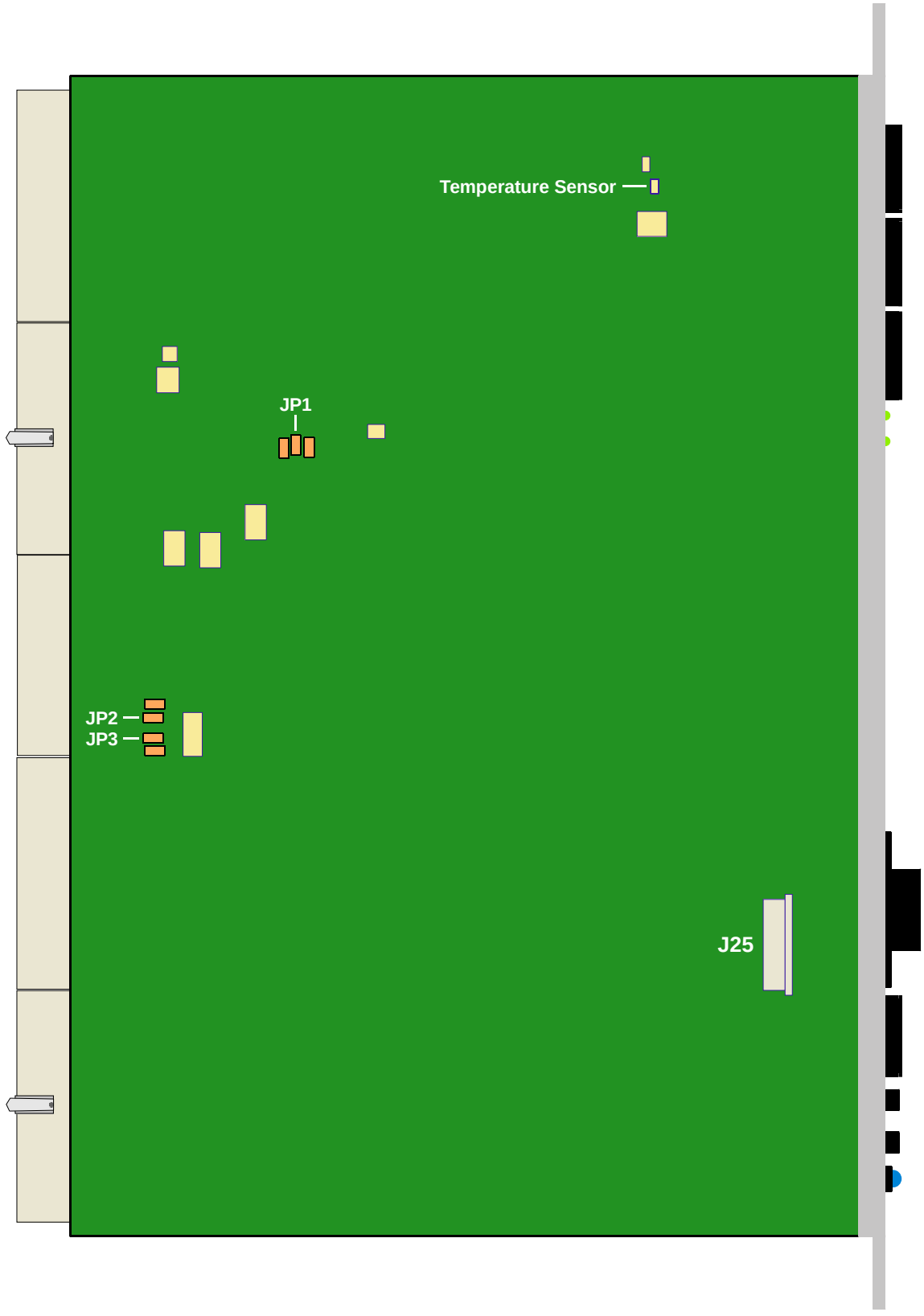


Figure 1-4: CP6003-SA Board Layout – Bottom View



1.5 Technical Specification

Table 1-1: CP6003-SA Main Specifications

FEATURES		SPECIFICATIONS
Processor and Memory	CPU	The CP6003-SA supports the following 2nd generation microprocessors: • Quad-core Intel® Core™ i7-2715QE (SV), 2.1 GHz, 6 MB L3 cache • Dual-core Intel® Core™ i7-2655LE (LV), 2.2 GHz, 4 MB L3 cache • Dual-core Intel® Core™ i5-2515E (SV), 2.5 GHz, 3 MB L3 cache Further processor features: • Up to four execution cores • Intel® Hyper-Threading Technology (Intel® HT Technology) • Intel® 64 Architecture • Intel® Advanced Vector Extensions (AVX) floating point • Intel® Turbo Boost Technology 2.0 • Intel® Intelligent Power Sharing (IPS) • System memory interface with optimized support for dual-channel DDR3 SDRAM memory at 1333 MHz with ECC • Integrated 2D and 3D Graphics Engines • DMI 2.0 with 5 GT/s and FDI interfaces to the Intel® QM67 chipset • One x8 and two x4 PCI Express 2.0 ports operating at 5 GT/s Please contact Kontron for further information concerning the suitability of other Intel processors for use with the CP6003-SA.

	Memory	Main Memory:
		• Up to 16 GB, dual-channel DDR3 SDRAM memory with ECC running at 1333 MHz on two SODIMM sockets
		Cache Structure:
		• 64 kB L1 cache for each core
		  • 32 kB instruction cache
		  • 32 kB data cache
		• 256 kB L2 shared instruction/data cache for each core
		• Up to 6 MB L3 shared instruction/data cache
		Flash Memory:
		• Two redundant SPI flashes (2 x 8 MB) for uEFI BIOS and controlled by the IPMI controller
		• Up to 32 GB NAND flash via an onboard Serial ATA Flash module (SSD)
		Serial EEPROM with 64 kbit

Table 1-1: CP6003-SA Main Specifications (Continued)

FEATURES		SPECIFICATIONS

Chipset	Intel® QM67	Mobile Intel® QM67 Express Chipset:
		• Two x4 or eight x1 PCI Express 2.0 ports operating at 5 GT/s (only one x4 PCI Express port is used on the CP6003-SA)
		• SATA host controller with six ports and RAID 0/1/5/10 support
		  • Two SATA 6 Gb/s ports accessible via onboard connectors
		  • Four SATA 3 Gb/s ports accessible via rear I/O
		• USB 2.0 host interface with up to 14 USB ports available (only six ports are used on the CP6003-SA)
		• Integrated Ethernet controller
		• SPI flash interface support
		• Low Pin Count (LPC) interface
		• Power management logic support
		• Enhanced DMA controller, interrupt controller, and timer functions
		• System Management Bus (SMBus) compatible with most I²C™ devices
		• DMI 2.0 with 5 GT/s and FDI interfaces to the processor
		• High Definition Audio (HDA) interface
		• Analog display port
		• Three digital display ports
		• Integrated RTC

Integrated Controller	Graphics controller	High-performance 3D graphics controller integrated in the processor: • Support for two independent displays • Supports analog displays (CRT) up to a resolution of 2048 x 1536 pixels with 32-bit color @ 75 Hz • Supports digital displays (HDMI/DVI) up to a resolution of 1920 x 1200 pixels @ 60 Hz • Dynamic Video Memory Technology (DVMT)
Interfaces	CompactPCI	Compliant with CompactPCI Specification PICMG 2.0 R 3.0: • System controller operation • 64-bit/66 MHz PCI or PCI-X master interface with dedicated PCIe-to-PCI-X bridge • 3.3V or 5V signaling levels (universal signaling support) Compliant with the Packet Switching Specification PICMG 2.16. The CP6003-SA supports System Master hot swap functionality and application-dependent hot swap functionality when used in a peripheral slot. When used as a System Master, the CP6003-SA supports individual clocks for each slot and the ENUM signal handling is in compliance with the PICMG 2.1 Hot Swap Specification. When installed in a peripheral slot, the CP6003-SA is isolated from the CompactPCI bus. It receives power from the backplane and supports rear I/O and, if the system supports it, packet switching (in this case up to two channels of Gigabit Ethernet).

Table 1-1: CP6003-SA Main Specifications (Continued)

	FEATURES	SPECIFICATIONS
Interfaces	Rear I/O	The following interfaces are routed to the rear I/O connectors J3 and J5. • COMA (RS-232 signaling) and COMB (RS-422 signaling); no buffer on the rear I/O module is necessary • 4 x USB 2.0 • 1 x CRT VGA, 2 x HDMI/DVI • 1 x HDA • 2 x Gigabit Ethernet (compliant with PICMG 2.16, R 1.0) • 4 x SATA 3 Gb/s • 2 x GPIOs (on request) The rear I/O connector J4 is optionally available and provides rear I/O interconnection to the PMC/XMC interface.
	Gigabit Ethernet	Five 10 Base-T/100 Base-TX/1000 Base-T Gigabit Ethernet interfaces based on one Intel® 82579LM Gigabit Ethernet controller and one Intel® 82580EB Quad Gigabit Ethernet controller: • Three RJ-45 connectors on the front panel • Two ports on the rear I/O (PICMG 2.16) • Automatic mode recognition (Auto-Negotiation) • Automatic cabling configuration recognition (Auto-MDI/X)
	USB	Six USB ports supporting UHCI (USB 1.1) and EHCI (USB 2.0): • Two type A USB 2.0 connectors on the front panel • Four USB 2.0 ports on the rear I/O interface
	Serial	Two 16C550-compatible UARTs: • One RS-232 port on the front panel and routed to rear I/O, COMA • One RS-422 port on the rear I/O, COMB
	PMC	PMC interface: • Four onboard mezzanine connectors, (Jn1-Jn4), for connecting a standard PMC module • Up to 64-bit/66 MHz PCI or up to 64-bit/133 MHz PCI-X interface with dedicated PCIe-to-PCI-X bridge • Only 3.3V PCI signaling voltage • Rear I/O supported through the CompactPCI connector J4 (optional) • Supported voltages: 3.3 V, 5 V, +12 V, and -12 V
	XMC	XMC interface: • One onboard XMC connector (P15) • Up to x8 lanes PCI Express 2.0 ports operating at 5 GT/s • Rear I/O supported through the PMC connector (Jn4) to the CompactPCI connector J4 (optional)
	Serial ATA	Two Serial ATA 6 Gb/s interfaces for: • Up to 32 GB flash memory via an onboard SATA Flash module, or • Onboard 2.5" hard disk drive (HDD) or solid state drive (SSD) is supported in combination with the MMADP-SATA01 module • One standard SATA 6 Gb/s interface for the standard SATA connector Four SATA 3 Gb/s ports accessible via rear I/O

Table 1-1: CP6003-SA Main Specifications (Continued)

FEATURES		SPECIFICATIONS
Sockets	Front Panel Connectors	• VGA: 15-pin, D-Sub connector, J9 • USB: two 4-pin, type A connectors, J6 and J7 • Ethernet: three 8-pin, RJ-45 connectors, J10, J11 and J12 • Serial port: one 8-pin, RJ-45 connector, J8 (COMA) • PMC/XMC front panel bezel cutout

	Onboard Connectors	• PMC connectors J21 - J24 (Jn1 - Jn4)
		• XMC connector, J20
		• Two SATA connectors
		  • One 7-pin, standard SATA connector, J14
		  • One 34-pin, SATA extension connector, J17
		• JTAG connector, J16
		• Debug connector, J15
		• XDP-SFF (debug) connector, J25
		• CompactPCI Connectors J1 - J5, J4 optional
		• Two 204-pin DDR3 SODIMM sockets, J18 and J19

Switches	DIP Switches	Three onboard DIP switches, SW1, SW2, and SW3, for board configuration
	Reset Switch	One front panel hardware reset switch
	Hot Swap Switch	One switch for hot swap purposes integrated in the front panel handle in accordance with PICMG 2.1 Rev. 2.0.
LEDs	System LEDs	System Status LEDs: • I0/I1 (red/green): Indicate the software status of the IPMI controller • WD (green): Watchdog Status • TH (red/green): Temperature Status • HS (blue): Hot Swap Control General Purpose LEDs: • LED 0..3 (red/green/amber): General Purpose / POST code
	Ethernet LEDs	Gigabit Ethernet Status on CP6003-SA: • ACT (green): Ethernet Link/Activity • SPEED (green/orange/off): Ethernet Speed
Timer	Watchdog Timer	• Software-configurable, two-stage Watchdog with programmable timeout ranging from 125 ms to 4096 s in 16 steps • Serves for generating IRQ or hardware reset
	System Timer	• The Intel® QM67 chipset contains three 8254-style counters which have fixed uses • In addition to the three 8254-style counters, the Intel® QM67 chipset includes eight individual high-precision event timers that may be used by the operating system. They are implemented as a single counter each with its own comparator and value register.

Table 1-1: CP6003-SA Main Specifications (Continued)

	FEATURES	SPECIFICATIONS
IPMI	IPMI Controller	• NXP® ARM7 microcontroller with redundant 512 kB firmware flash and automatic roll-back strategy • The IPMI controller carries out IPMI commands such as monitoring several onboard temperature conditions, board voltages and the power supply status, and managing hot swap operations. • The IPMI controller is accessible via two IPMBs (through the J1 and J2 connectors) and one host Keyboard Controller Style (KCS) Interface.

Thermal	Thermal Management	CPU and board overtemperature protection is provided by:
		• Temperature sensors integrated in the 2nd gen. Intel® Core™ i7/i5 processor:
		  • One temperature sensor for monitoring each processor core
		  • One temperature sensor for monitoring the graphics core
		  • One temperature sensor for monitoring the package die temperature
		• One temperature sensor integrated in the Intel® QM67 chipset for monitoring the chipset
		• One onboard temperature sensor for monitoring the board temperature
		• Specially designed heat sink

Security	TPM	Trusted Platform Module (TPM) 1.2 for enhanced hardware- and software-based data and system security (on request)
Software	uEFI BIOS	AMI Aptio®, AMI's next-generation BIOS firmware based on the uEFI Specification and the Intel Platform Innovation Framework for EFI. • LAN boot capability for diskless systems (standard PXE) • Redundant image; automatic fail-safe recovery in case of a damaged image • Non-volatile storage of setting in the SPI flash (battery only required for the RTC) • Compatibility Support Module (CSM) providing legacy BIOS compatibility based on AMIBIOS8 • Command shell for diagnostics and configuration • uEFI shell commands executable from mass storage device in a Pre-OS environment (open interface) • IPMI support in the command shell
	Software IPMI	IPMI firmware providing the following features: • The IPMI controller is accessible via up to two IPMBs, IOL and one KCS interface with interrupt support • The IPMI firmware can be updated in field through all supported interfaces using the function "fwum..." of the open-source tool "ipmitool". For further information on the ipmitool refer to the sourceforge.net website. • Two IPMI controller flash banks with automatic roll-back capability in case of an upgrade firmware failure • Board supervision and control extensions such as board reset, power and SPI flash control, etc.
	Operating Systems	The board is offered with various Board Support Packages including Windows, VxWorks and Linux operating systems. For further information concerning the operating systems available for the CP6003-SA, please contact Kontron.

Table 1-1: CP6003-SA Main Specifications (Continued)

FEATURES		SPECIFICATIONS
General	Mechanical	6U, 4HP, CompactPCI-compliant form factor
	Power Consumption	See Chapter 5 for details.
	Temperature Ranges	Operational: 0°C to +60°C Standard -40°C to +70°C Extended without TPM Storage: -55°C to +85°C Without hard disk and without battery  *Note ...* When a battery is installed, refer to the operational specifications of the battery as this determines the storage temperature of the CP6003-SA (See "Battery" below).  *Note ...* When additional components are installed, refer to their operational specifications as this will influence the operational and storage temperature of the CP6003-SA.
	Battery	3.0V lithium battery for RTC with battery socket. Battery type: UL-approved CR2025 Temperature ranges: Operational: -20°C to +70°C typical (refer to the battery manufacturer's specifications for exact range) Storage: -55°C to +70°C typical (no discharge)
	Climatic Humidity	93% RH at 40 °C, non-condensing (acc. to IEC 60068-2-78)
	Dimensions	233.35 mm x 160 mm
	Board Weight	CP6003-SA: 775 g (with heat sink but without mezzanine cards)

1.6 Standards

The board complies with the requirements of the following standards:

Table 1-2: Standards

TYPE	ASPECT	STANDARD	REMARKS
CE	Emission	EN55022 EN61000-6-3	--
	Immission	EN55024 EN61000-6-2	--
	Electrical Safety	EN60950-1	--
Mechanical	Mechanical Dimensions	IEEE1101.10	--
Environmental	Climatic Humidity	IEC60068-2-78	93% RH at 40°C, non-condensing (see note below)
	WEEE	Directive 2002/96/EC	Waste electrical and electronic equipment
	RoHS	Directive 2002/95/EC	Restriction of the use of certain hazardous substances in electrical and electronic equipment
	Vibration (Sinusoidal)	IEC60068-2-6	Ruggedized version test parameters: • 10-300 (Hz) frequency range • 2 (g) acceleration • 1 (oct/min) sweep rate • 10 cycles/axis • 3 axes
	Single Shock	IEC60068-2-27	Ruggedized version test parameters: • 30 (g) acceleration • 9 (ms) shock duration half sine • 3 number of shocks per direction (total: 18) • 6 directions • 5 (s) recovery time
	Permanent Shock	IEC60068-2-29	Ruggedized version test parameters: • 15 (g) acceleration • 11 (ms) shock duration half sine • 500 number of shocks per direction • 6 directions • 5 (s) recovery time

Note ...

Kontron performs comprehensive environmental testing of its products in accordance with applicable standards.

Customers desiring to perform further environmental testing of Kontron products must contact Kontron for assistance prior to performing any such testing. This is necessary, as it is possible that environmental testing can be destructive when not performed in accordance with the applicable specifications.

In particular, for example, boards **without conformal coating** must not be exposed to a change of temperature exceeding 1K/minute, averaged over a period of not more than five minutes. Otherwise, condensation may cause irreversible damage, especially when the board is powered up again.

Kontron does not accept any responsibility for damage to products resulting from destructive environmental testing.

1.7 Related Publications

The following publications contain information relating to this product.

Table 1-3: Related Publications

PRODUCT	PUBLICATION
CompactPCI Systems and Boards	CompactPCI Specification PICMG 2.0, Rev. 3.0 CompactPCI Packet Switching Backplane Specification PICMG 2.16 Rev. 1.0 CompactPCI System Management Specification PICMG 2.9 Rev. 1.0 CompactPCI Hot Swap Specification PICMG 2.1 Rev. 2.0
	IPMI - Intelligent Platform Management Interface Specification v2.0
	Kontron CompactPCI Backplane Manual, ID 24229
PMC Module	IEEE 1386-2001, IEEE Standard for a Common Mezzanine Card (CMC) Family IEEE 1386.1-2001, IEEE Standard Physical and Environmental Layers for PCI Mezzanine Cards (PMC)
XMC Module	ANSI/VITA 42.0-200x XMC Switched Mezzanine Card Auxiliary Standard ANSI/VITA 42.3-2006 XMC PCI Express Protocol Layer Standard
Platform Firmware	Unified Extensible Firmware Interface (uEFI) Specification, Version 2.1
All Kontron products	Product Safety and Implementation Guide, ID 1021-9142
Kontron	CP6003-SA uEFI BIOS User Guide
	CP6003-SA IPMI Firmware User Guide

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