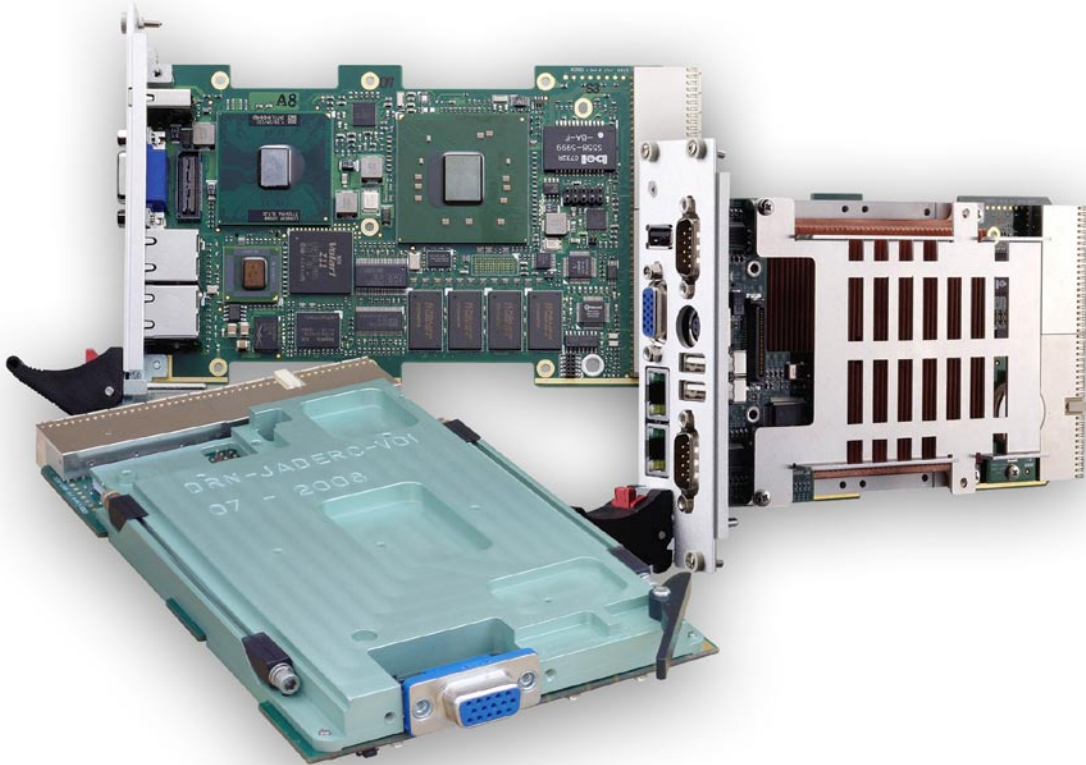


▶ ITC-320

Rugged Blade PC



▶ Performance/Dissipation matching your application

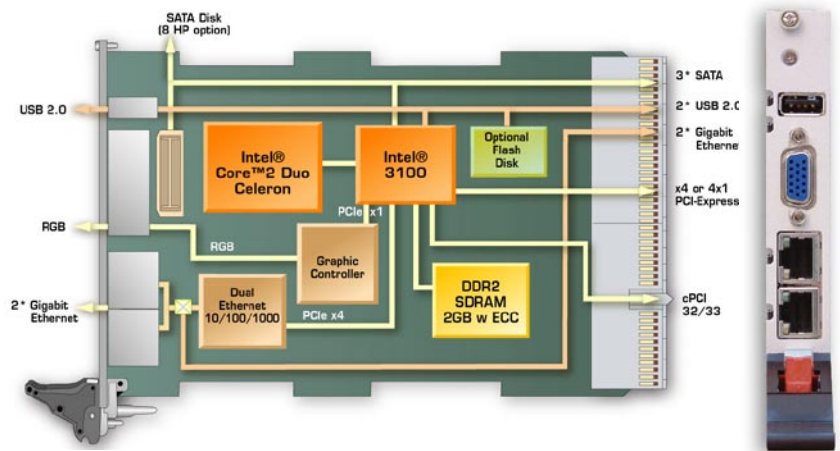
Performance 64-bit Dual Core Intel® Core™ 2 Duo processor 1.5 GHz with SSE3
Best Performance/Dissipation compromise Intel® Core™ Duo processor 1.2 GHz
Low Power Consumption Intel® Celeron® M 1.07 GHz

▶ Highest Versatility

Dual Gigabit Ethernet, Triple USB 2.0, Quad SATA-150, Graphics, GPIO
PCI-Express x4 configurable as 4 x1 port

➤ Product Overview

The Kontron's ITC-320 series expands Kontron' Intel® single and multi-core blade SBC portfolio with a set of fully fledged I/O embedded PCs enabling the design of cost effective, high performance embedded computers to meet the new challenges in transport, medical and defense applications. The ITC-320 series use long life cycle chipsets from the Intel® Embedded Architecture in order to protect customers investments.



Three Soldered CPUs to better match customers' requirements:

➤ Intel® Celeron®-M ULV

Running at 1.07 GHz for low power dissipation, this single core processor features 1 MB of on-die Level 2 cache and a 533 MHz Front Side Bus (FSB).

➤ Intel® Core™ Duo LV

Running at 1.2 GHz, this CPU is a good compromise between performance and power dissipation.

The Intel® Core™ Duo is a dual-core processor which features a large on-die 2 MB Level 2 cache and support a 533 MHz FSB. For image and digital image processing applications, the Intel® Core™ Duo supports the MMXTM™ technology enhanced with streaming SIMD instructions Extensions 2 and 3 (SSE2 and SSE3).

➤ Intel® Core™2 Duo LV

Running at 1.5 GHz, this CPU is the best choice for intensive data and signal processing.

The Intel® Core™2 Duo is a dual-core processor which supports Intel® 64 architecture and full compatibility with IA-32 software.

A large on-die 4 MB Level 2 cache with Advanced Transfer Cache Architecture and Supplemental Streaming SIMD Extensions 3 (SSSE3) make the Intel® Core™2 Duo an extremely efficient processor for Digital Signal Processing applications. The Intel® Core™2 Duo features a 667 MHz FSB.

Soldered DDR2 Memory with the support of ECC for a better reliability

The ITC-320 is available with 1 GB of DDR2-400 SDRAM. 2 GB is available on demand. The SDRAM is managed by the integrated Memory Controller Hub and I/O Controller Hub (IMCH and IICH) Intel® 3100. Error Correction and Control (ECC) feature is supported by the IIMCH.

Outstanding number of storage interfaces

➤ The ITC-320 features four SATA-150 ports to interface with a large number of devices. Three are available on the rear J2 connector, and the fourth is routed on the 8HP option for connecting a 2.5" hard disk drive.

➤ In addition, the ITC-320 support an USB 2.0 Low-Profile Flash Disk module.

Three USB 2.0 ports are available, one on the front panel (to easily download files from external devices) and two on the rear J2 connectors. Two additional USB 2.0 ports are available on the 8HP build version front panel.

Configurable Dual Gigabit Ethernet ports

The Dual Gigabit Ethernet controller is directly interfaced to the IIMCH using a PCI-Express x4 link in order to provide an optimum throughput. The two ports can be software configured to be routed either on the front (on RJ-45 connectors) or on the rear (J2 connector) on easy to connect PICMG 2.16 type pin-out. The rear Gigabit Ethernet ports are routed to two RJ-45 connectors on the Rear Transition Module (RTM).

CompactPCI backplane supporting PCI-Express x4 or 4x1 interfaces

➤ The ITC-320 meets the CompactPCI PICMG 2.0 Rev. 3.0 compatible recommendation. It features a system master PCIbus 32-bit/33 MHz interface able to drive 7 peripheral slots. When several ITC-320 are planned to be plugged onto the same cPCI bus, a satellite version, without PCIbus shall be used. Please, contact Kontron.

➤ When high throughput, PCI compliant interfacing is required, the ITC-320 features a PCI-Express port x4 configurable as four x1 links onto rear J2 connector. In order to guaranty an optimum signal integrity of the PCI-Express link, the ITC-320 can be provided with a 5 GHz HSHM connector. Please, contact Kontron.

Supervisory Functions

The integrated IMCH features watchdog timer and RTC which meets embedded use. In addition, the I2C port of the IMCH of the ITC-320 is accessible of the rear J2 connector at the standard IPMI pin-out, to ease shelf management monitoring.

Designed to meet the requirements of harsh environments

The ITC-320 has been designed so that the same PCB can be used in various builds able to meet a wide range of temperatures, from -40°C to $+85^{\circ}\text{C}$. The ITC-320 exists in a rugged conduction-cooled version for being used in harsh environments.

10-Year Long Life Cycle

Investing in a new project is always a challenge and risky. Extending the lifetime of an application to the possible maximum is therefore a critical issue to save the development investments. The ITC-320 has been designed with long life cycle components. Beyond the standard commercial availability of components, Kontron offers services able to procure products over 10 years.

Unique Features

- Fully soldered components for higher shock vibration resistance
- PCI-Express connectivity on backplane
- Quad SATA-150 interfaces
- 10-year long life cycle
- Rugged Conduction-cooled version

➤ Technical Information

System processor
Onboard soldered processor as build option : <ul style="list-style-type: none"> ➤ Intel® Core™2 Duo LV (L7400) 1.5 GHz, 4 MB L2 cache, SSE3, 667 MHz FSB, 17W ➤ Intel® Core™ Duo (U2500) 1.2 GHz, 2 MB L2 cache, 533 MHz FSB, 9W ➤ Intel® Celeron® M Proc ULV(423) 1.07 GHz, 1 MB L2 cache, 533 MHz FSB, 5.5W ➤ Passive cooling for all builds within 4HP height. ➤ Forced air cooling at specific flow rate is required depending on the processor version.
Integrated Chipset
<ul style="list-style-type: none"> ➤ Intel® 3100 integrated MCH (Memory Controller Hub) and ICH (I/O Controller Hub). ➤ FSB port to processor: 533/667 MHz ➤ Watchdog Timer: 2-stage, system reset and nmi Programmable Timer ➤ RTC: Integrated in chipset ➤ GPIOs: 7 available on rear J2
Memory
<ul style="list-style-type: none"> ➤ System Memory: 1 GB of DDR2-400 with ECC 2 GB available on request ➤ System Flash: 16 Mbit FWH Flash Memory ➤ User Flash: Socket for USB Flash Disk, Low Profile, 2.54 pitch connector, 8 MB available ➤ HDD: Onboard 2.5" SATA mounting within 8HP mezzanine
I/O Connectors
<ul style="list-style-type: none"> ➤ Gigabit Ethernet: Dual Ports configurable either on front RJ-45 or rear J2. PCI-e x4 interface to host ➤ Graphics: 64-bit 2D graphics engine on PCI-e x1. ➤ Analog VGA interface on front. Associated 32 MB of DDR2 SDRAM. Integrated 24-bit true-color RAMDAC with 230 MHz pixel clock

CompactPCI Interfaces
<ul style="list-style-type: none"> ➤ PICMG 2.0 Rev. 3.0 compatible ➤ 32-bit/ 33MHz PCIbus ➤ 5V or 3.3V PCI signaling from backplane ➤ System Slot only ➤ Supports up to 7 devices ➤ Peripheral Slot (no PCIbus) on request
Front Panel Interfaces
4HP Air Cooled: <ul style="list-style-type: none"> ➤ Ethernet (x2): RJ-45 with LEDs ➤ VGA: VGA-CRT 15-pin D-Sub connector ➤ USB: 4-pin Type-A connector ➤ Control: Reset button, LEDs 8HP Air Cooled (In addition to 4HP): <ul style="list-style-type: none"> ➤ COM3,4 (x2): 9-pin D-Sub connectors ➤ USB (x2): 4-pin Type-A connector ➤ PS/2: 6-pin mini-DIN connector
Rear I/O via J2
<ul style="list-style-type: none"> ➤ Two USB 2.0 ports ➤ Two Gigabit Ethernet Ports ➤ Three SATA-150 Ports ➤ Two COM ports ➤ Seven GPIOs ➤ I2C Management bus ➤ PCI-Express x4 Port, configurable in 4x1
Power Consumption
Under WindowsXP : Idle / 100 % CPU <ul style="list-style-type: none"> ➤ Intel® Core™2 Duo 1.5 GHz: 29W / 36W ➤ Intel® Core™ Duo 1.2 GHz: 24W / 27W ➤ Intel® Celeron® M 1.07 GHz: 22W / 24W

Environmental Specifications		
	SA Standard Commercial	RC Rugged Conduction-Cooled
Conformal Coating	Optional	Standard
Airflow	1.5 m/s without throttling at 55°C	NA
Temperature	VITA 47-Class AC1	VITA 47-Class CC3
Cooling Method	Convection	Conduction
Operating	0° to +55°C	-40° to +85°C
Storage	-45° to +85°C	-45° to +85°C
Vibration Sine (Operating)	20/500 Hz: 2g	22/2,000 Hz: 2g
Random	VITA 47-Class V1	VITA 47-Class V3
Shock (Operating)	20g/11 ms Half Sine	40g/11 ms Half Sine
Altitude (Operating)	-1,640 to 15,000 ft	-1,640 to 15,000 ft
Relative Humidity	90% without condensation	95% without condensation

► Ordering Information

Article	Description	Order Code
	4HP Air-Cooled	
ITC-320	4HP, Intel® Core™2 Duo (L7400) 1.5 GHz, 4MB L2, 1GB SDRAM	ITC320-SA52-00000
ITC-320	4HP, Intel® Core™ Duo (U2500) 1.2 GHz, 2MB L2, 1GB SDRAM	ITC320-SA22-00000
ITC-320	4HP, Intel® Celeron® M (423) 1.07 GHz, 1MB L2, 1GB SDRAM	ITC320-SA02-00000
	8HP Air-Cooled	
ITC-322	8HP, Intel® Core™2 Duo (L7400) 1.5 GHz, 4MB L2, 1GB SDRAM	ITC322-SA52-00000
ITC-322	8HP, Intel® Core™ Duo (U2500) 1.2 GHz, 2MB L2, 1GB SDRAM	ITC322-SA22-00000
ITC-322	8HP, Intel® Celeron® M (423) 1.07 GHz, 1MB L2, 1GB SDRAM	ITC322-SA02-00000
	4HP Rugged Conduction-Cooled	
ITC-320	4HP, Intel® Core™2 Duo (L7400) 1.5 GHz, 4MB L2, 1GB SDRAM	ITC320-RC52-00000
ITC-320	4HP, Intel® Core™ Duo (U2500) 1.2 GHz, 2MB L2, 1GB SDRAM	ITC320-RC22-00000
ITC-320	4HP, Intel® Celeron® M (423) 1.07 GHz, 1MB L2, 1GB SDRAM	ITC320-RC02-00000
	Associated Products	
RTM	Rear Transition Module	PB-IT3-000
USB Flash Disk	4GB USB Flash Disk Module	FDM-USB-4GB-00
Rack	4-slot 200W Development Rack	RTOP-4S200-00



With AFAQ ISO 9001, 2000 Version Certification
Kontron Modular Computers S.A.
Guarantees Total Customer Satisfaction

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