



Liantec Systems Corporation

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R1C-QM77

**1U 19" Rackmount Mini-ITX Intel Ivy Bridge Mobile Barebone Solution
Support 3rd Generation Core i3 / i5 / i7 / Celeron Mobile Processor**

Datasheet

2012.09.22



- » 1U 19" Rackmount Chassis Solution with 430 x 44 x 210 mm (W x H x D).
- » Intel Ivy Bridge 3rd Generation Core-i3 / i5 / i7 / Celeron Mobile Processors.
- » HDMI, DVI, Dual Intel Gbit Ethernet, SATA-III 6Gbit/s, USB 3.0 Ports.
- » 1U CPU Cooler with Skived Copper Heat Sink and Dual Ball Bearing Fan.
- » Front Operating-Removable Air Filter and Rear 40 x 40 x 20 mm System Fan.
- » Supports Ultra Low Profile 1U Slim PCI Express Add-on Card.
- » 210 mm of Short Depth with Internal 250W AC/DC ATX Power Supply.



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Overview

Liantec R1C-QM77 series is an industrial 1U 19" rack-mountable mini-ITX system platform, features Intel Ivy Bridge Mobile computing platform with Intel 3rd generation Core i3, Core i5, Core i7 processors, supports 16GB of memory capacity, onboard dual Intel Gbit Ethernet, HDMI, DVI, HD audio, SATA-III 6Gb/s and SuperSpeed USB 3.0 ports, x16 PCI Express slot, Mini-PCIe / USB MiniCard socket, 44mm of height and 210mm of depth for rackmount, wallmount or standalone application. The R1C-QM77 also supports one slot of Ultra Low Profile 1U Slim x1 PCIe add-on card, one 3.5" or two 2.5" drive, internal AC/DC ATX power supply, one system fan, front access USB ports and operating-removable air filter on front panel.

The R1C-QM77 also features the flexible compatibility with removable backplane including I/O ports on motherboard. That is, the R1C-QM77 is suitable for OEM project with customized motherboard. Based on the features of Ultra Low Profile 1U Slim add-on card support, the R1C-QM77 meets the demand of industrial embedded applied computing application including the industrial PC platform, digital signage, transaction and multimedia workstation, car PC, slim-type server, STB (Set-Top-Box), DVR, PVR, networking server and industrial embedded computing platform.



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Key Features

The Liantec R1C-QM77 series 1U rackmount slim type / short depth Mini-ITX barebone solution features the compact size with 430 x 44 x 210 mm (W x H x D) of dimension, and supports Ultra Low Profile Slim 1U PCI Express add-on card.

- Small Form Factor (SFF) 1U 19" rackmount Mini-ITX chassis with 430 x 44 x 210 mm (W x H x D) of dimension.
- Industrial heavy-duty steel / rugged construction for harsh industrial environment.
- Intel Ivy Bridge (IVB) QM77 Platform with Intel Gen3 Core i3 / i5 / i7 / Celeron Mobile CPU and 16GB DDR3 SDRAM capacity.
- Intel Ivy Bridge Mobile platform with QM77 PCH, Intel GMA HD Graphics 4000 650MHz GPU core, supports 16GB DDR3 SDRAM.
- VGA, HDMI, DVI, SATA-III 6Gbit/p, USB 3.0, and Dual Intel Gbit Ethernet ports.
- Supports Ultra Low Profile 1U Slim PCIe Add-on Card
- Onboard TPM with Infineon SLB9635 controller.
- Support SmartFan function on both of CPU fan and system fan.
- Front access dual USB ports.
- One 4020 system fan with operating-removable air filter on front panel.
- One 3.5" or two 2.5" drive bay.
- Internal full range 90~264V / 47~63Hz AC/DC 250W ATX power supply.



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Specification

Form Factor	Industrial 1U 19" Rackmount EIA RS-310C Heavy-duty Steel Chassis with 430 x 44 x 210 mm (W x H x D) of dimension
Motherboard	Liantec ITX-QM77 Mini-ITX Intel QM77 Ivy Bridge (IVB) 3th generation Core i3 / i5 / i7 / Celeron mobile motherboard
CPU	<p>Intel Socket G2 μPGA988 / FCPGA988 / rPGA988B / FC-PGA10 Ivy Sandy Bridge Core i3 / i5 / i7 / Celeron mobile processors Sandy Bridge Core i3 / i5 / i7 / Celeron mobile processors Power design supports up to 45W CPUs</p> <p>Intel Embedded Ivy Bridge μPGA988B / FCPGA988 Processor</p> <ul style="list-style-type: none"> ● Intel Core i7-3610QE 4-Core / 8-Thread / 2.3 GHz / 6MB / 45W ● Intel Core i5-3610ME 2-Core / 4-Thread / 2.7 GHz / 3MB / 35W ● Intel Core i3-3120ME 2-Core / 4-Thread / 2.4 GHz / 3MB / 35W (since Oct. 2012) <p>Intel Embedded Sandy Bridge μPGA988B / FCPGA988 Processor</p> <ul style="list-style-type: none"> ● Intel Core i7-2710QE 4-Core / 8-Thread / 2.1 GHz / 6MB / 45W ● Intel Core i5-2510E 2-Core / 4-Thread / 2.5GHz / 3MB / 35W ● Intel Core i3-2330E 2-Core / 4-Thread / 2.2GHz / 3MB / 35W ● Intel Celeron B810 2-Core / 2-Thread / 1.6GHz / 2MB / 35W
DRAM	<p>Two vertical type 204-pin So-DIMM sockets Supports dual channel DDR3-1333/1066 non-ECC SDRAM Memory Capacity supports up to 16 GBytes</p>
BIOS	AMI BIOS in 64Mb SPI flash
Power Management	<p>Support S1 / S3 / S4 / S5 of power state Support WoL (Wake-on-LAN) and WoR (Wake-on-Ring)</p>
Watchdog Timer	System reset with 1 to 255 sec./min. of timeout value
TPM	Support TPM 1.2 with onboard Infineon SLB9635
Expansion Bus Interface	<p>PCI Express Expansion Slot</p> <ul style="list-style-type: none"> ● One 16-lane PCI Express expansion slot with 16-lane PCI Express bus interface ● Support x1 / x8 / x16 PCI Express graphics mode add-on card ● Support x1 / x4 / x8 / x16 PCI Express I/O mode add-on card ● PCI Express 3.0 / 2.0 compliant with Intel Gen3 Core i7 / i5 CPU



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	<p>(i7-3610QE, i5-3610ME)</p> <ul style="list-style-type: none"> ● PCI Express 2.0 compliant with all Intel Gen3 Core i3 and Gen2 Core CPUs <p>MiniCard (Mini PCI Express) Socket</p> <ul style="list-style-type: none"> ● One MiniCard (Mini PCI Express / Mini PCIe) socket with one USB and 1-lane PCI Express bus interface ● USB 2.0 / PCI Express 2.0 compliant
SATA Ports	<p>Intel QM77 PCH built-in SATA controller</p> <p>Onboard 2 SATA-III 6Gbit/s ports with red connectors</p> <p>Onboard 3 SATA-II 3Gbit/s ports with black connectors</p> <p>Supports RAID 0, 1, 0+1 (10), 5</p>
Video Interface	<p>Intel Ivy Bridge (IVB) CPU built-in Intel HD Graphics 4000/2500 GPU core with 650MHz of base frequency, support Microsoft DirectX 11, OpenGL 3.1, and OpenCL 1.1.</p> <p>Intel Sandy Bridge CPU built-in Intel HD Graphics 3000/2000 GPU core supports Microsoft DirectX 10.1, OpenGL 3.0, Clone, Twin and Extended DT display modes</p> <p>Shared Video memory supports up to 1.7 GBytes</p> <p>VGA Interface</p> <ul style="list-style-type: none"> ● External VGA port with DB15 female connector on rear I/O panel ● Supports up to 2048 x 1536 of resolution. <p>DVI Interface</p> <ul style="list-style-type: none"> ● External DVI port with DVI-I connector on rear I/O panel ● Supports up to 1920 x 1200 of resolution <p>HDMI Interface</p> <ul style="list-style-type: none"> ● External HDMI 1.3 port with HDMI connector on rear I/O panel ● Supports up to 1920 x 1080 of resolution
Audio Interface	<p>Onboard Realtek ALC892 HD audio codec</p> <p>External Line-in, Line-out, Mic-in audio jacks</p> <p>Internal front audio pin header</p>
Ethernet Interface	<p>Onboard dual Intel Gbit Ethernet interfaces</p> <p>10/100/1000BASE-TX auto-switching, IEEE802.3U compliant</p> <p>External dual RJ45 8P8C connectors on rear I/O panel</p>



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USB Ports	<p>Intel QM77 PCH built-in USB controller</p> <p>Support SuperSpeed USB 3.0 interface with 5Gbps of data transfer bandwidth</p> <p>External 4 USB 3.0 / 2.0 ports on rear I/O panel</p> <p>Internal 8 USB 2.0 ports pin headers</p> <p>NOTE : The Intel USB 3.0 eXtensible Host Controller Driver is ONLY supported on Windows 7 (both 32-bit and 64-bit versions).</p>
Super-I/O Port	<p>Nuvoton NCT6776F Super-I/O controller</p> <ul style="list-style-type: none"> ● 4 RS-232 COM port including 1 external RS-232 port and 3 internal RS-232 port with +5V/+12V power output ● External PS/2 keyboard and mouse port ● Internal 8-bit programmable GPIO port
Front Panel	<ul style="list-style-type: none"> ● Power / reset button and power / HDD access indicated LED. ● Operating-removable air filter in front door. ● Dual USB ports.
Rear I/O Panel	<ul style="list-style-type: none"> ● AC inlet of power supply ● System fan ● PS/2 Keyboard and Mouse Ports ● RS232 COM and HDMI Ports ● VGA and DVI Ports ● 1st Gbit Ethernet RJ45 8P8C and Dual USB 3.0 Ports ● 2nd Gbit Ethernet RJ45 8P8C and Dual USB 3.0 Ports ● HD Audio Line-in, Line-out, Mic-in Ports ● Bracket of Ultra Low Profile Slim 1U add-on Card ● Customized back panel with I/O ports for consigned I/O boards
Add-on Card	<p>Support Ultra Low Profile 1U Slim PCIe Add-on Card</p> <ul style="list-style-type: none"> ● 1uPCIe-1000 Slim 1U PCIe Intel Gbit Ethernet Card ● 1uPCIe-1394b Slim 1U PCIe IEEE1394b FireWire 800 Host Card ● 1uPCIe-USB30 Slim 1U PCIe SuperSpeed USB 3.0 Host Card ● 1uPCIe-SATA600 Slim 1U PCIe eSATA 6Gbit/s Host Card ● Customized 1uPCIe Slim 1U PCIe base Add-on Cards
Drive Bay	<p>Internal 1 x 3.5" or 2 x 2.5" drive bay</p>
Power Supply	<p>Internal FSP250-50LC 250 watt AC/DC ATX power supply</p> <ul style="list-style-type: none"> ● Supports 90~264V / 47~63Hz AC power input ● Efficiency over 85% under 50% of full load.



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	<ul style="list-style-type: none">● Standby Efficiency under 1 watt of true input power(meets EuP Lot-6/2010 standard).● MTBF over 100,000 hours under 100% loading / 25°C
System Fan and Air Filter	One Sunon 40x40x20mm VAPO bearing system fan <ul style="list-style-type: none">● Speed : 5200 rpm● Air Flow : 6.3 CFM● Noise : 18 dBA● MTBF : over 65,000 hrs under 30°C● Operating-removable air filter on front panel
Environment	<ul style="list-style-type: none">● Power Requirement : 90~264V 47~63Hz AC power input● System Dimension : 430 x 44 x 210 mm (W x H x D)● Operating Temperature : 0 ~ 40°C (32 ~ 104°F)● Storage Temperature : -20 ~ 85°C (-4 ~ 185°F)● Operating Humidity : 5 ~ 85% relative humidity under 40°C, non-condensing.● Altitude : 10,000 ft. (3,000 m)● Vibration : 15G peak acceleration at 10 msec. of duration● Shock : 1.5 G Max (with package)● Power Safety : UL+CUL, TÜV EN60950-1, CB, CCC, CE, BSMI● Power EMI Certification : CE, BSMI, FCC, CISPR 22 class B



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Ordering Guide

Ordering Code	Features
R1C-QM77	<p>1U 19" Rackmount Intel QM77 Ivy Bridge Mobile Barebone</p> <p>Support Intel Gen3 Core-i3 / i5 / i7 / Celeron Mobile CPU with CPC-1500C 1U Copper-based / Dual Ball Bearing CPU Cooler with VGA, DVI, HDMI, Dual Gbit Ethernet, HD Audio, USB 3.0 Ports with SATA-III 6Gbit/s, MiniCard Socket, x16 PCIe Expansion Slot Supports Ultra Low Profile Slim 1U PCIe Add-on Card with 1 x 3.5" or 2 x 2.5" Drive Bay, 4020 System Fan, Air Filter with Internal 250W 100-240V AC/DC ATX Power Supply</p>
R1C-QM77-3610QE	<p>1U 19" Rackmount Intel Core i7-3610QE QM77 Barebone</p> <p>with Intel Ivy Bridge Core i7-3610QE QM77 4-Core / 8-Thread CPU with CPC-1500C 1U Copper-based / Dual Ball Bearing CPU Cooler with VGA, DVI, HDMI, Dual Gbit Ethernet, HD Audio, USB 3.0 Ports with SATA-III 6Gbit/s, MiniCard Socket, x16 PCIe Expansion Slot Supports Ultra Low Profile Slim 1U PCIe Add-on Card with 1 x 3.5" or 2 x 2.5" Drive Bay, 4020 System Fan, Air Filter with Internal 250W 100-240V AC/DC ATX Power Supply</p>
R1C-QM77-3610ME	<p>1U 19" Rackmount Intel Core i5-3610ME QM77 Barebone</p> <p>with Intel Ivy Bridge Core i5-3610ME 4-Core / 4-Thread CPU with CPC-1500C 1U Copper-based / Dual Ball Bearing CPU Cooler with VGA, DVI, HDMI, Dual Gbit Ethernet, HD Audio, USB 3.0 Ports with SATA-III 6Gbit/s, MiniCard Socket, x16 PCIe Expansion Slot Supports Ultra Low Profile Slim 1U PCIe Add-on Card with 1 x 3.5" or 2 x 2.5" Drive Bay, 4020 System Fan, Air Filter with Internal 250W 100-240V AC/DC ATX Power Supply</p>
R1C-QM77-3120ME	<p>1U 19" Rackmount Intel Core i3-3120ME QM77 Barebone</p> <p>with Intel Ivy Bridge Core i3-3120E 2-Core / 4-Thread CPU with CPC-1500C 1U Copper-based / Dual Ball Bearing CPU Cooler with VGA, DVI, HDMI, Dual Gbit Ethernet, HD Audio, USB 3.0 Ports with SATA-III 6Gbit/s, MiniCard Socket, x16 PCIe Expansion Slot Supports Ultra Low Profile Slim 1U PCIe Add-on Card with 1 x 3.5" or 2 x 2.5" Drive Bay, 4020 System Fan, Air Filter with Internal 250W 100-240V AC/DC ATX Power Supply</p>



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R1C-QM77-B810	1U 19" Rackmount Intel Celeron B810 QM77 Barebone with Intel Sandy Bridge Celeron B810 2-Core / 2-Thread CPU with CPC-1500C 1U Copper-based / Dual Ball Bearing CPU Cooler with VGA, DVI, HDMI, Dual Gbit Ethernet, HD Audio, USB 3.0 Ports with SATA-III 6Gbit/s, MiniCard Socket, x16 PCIe Expansion Slot Supports Ultra Low Profile Slim 1U PCIe Add-on Card with 1 x 3.5" or 2 x 2.5" Drive Bay, 4020 System Fan, Air Filter with Internal 250W 100-240V AC/DC ATX Power Supply
R1C-QM77-OEM	Customized OEM configuration based on the existing ITX-QM77 motherboard with compatible Intel Socket G2 PGA988 CPU, optional onboard interfaces, customized outlook and other integration service.

For the further information about R1C-QM77 Industrial 1U 19" Rackmount Mini-ITX Intel QM77 Ivy Bridge Mobile barebone solution, please visit the website at <http://www.liantec.com/product/R1C-QM77.htm> or email to info@liantec.com.