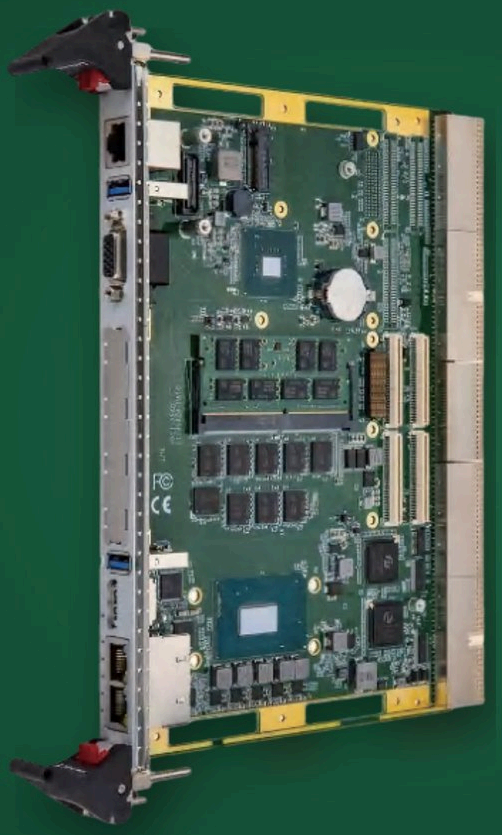
EQIO

CPCI-6320

PRODUCT MANUAL

6U Intel 6th-Gen SODIMM CompactPCI Controller

Intel Core i7-6820EQ



Measurement and control, made easy.

Easy · Quick · Input · Output

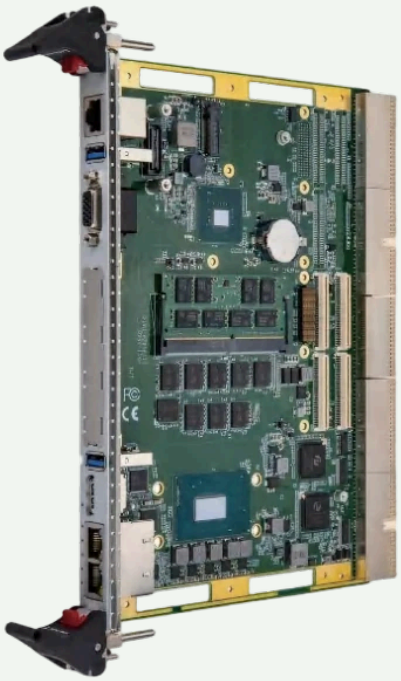
EQIO.COM

01 OVERVIEW

6U Intel 6th-Gen SODIMM CompactPCI Controller

CPCI system controller · Industrial automation · Measurement and control system · Rail transit · CompactPCI · Intel

CPCI-6320 uses 6th-generation Intel Core i7-6820EQ and QM170 chip group, provides DDR4 SO-DIMM slot, network, display and serial I/O, used for CompactPCI industrial control, measurement and control and equipment integrates.
Front panel and rear I/O USB, display, serial and audio respectively brought out, Gigabit Ethernet used for equipment and control network connect. Slot type memory facilitates per task capacity configured with, can and acquisition, communications board card paired with, build industrial test and automation equipment host.



Product appearance reference; shipped units may differ.

Key features

- 6th-generation Core i7-6820EQ platform
- Dual channel DDR4 SO-DIMM slot
- Up to 32GB board-level memory supports
- 64-bitCompactPCI bus
- VGA, digital display and Gigabit Ethernet

02 FUNCTIONS

Functions and engineering value

SODIMM memory x86 compute

I7-6820EQ 4-core processor and QM170 chip group together with dual channel DDR4 SO-DIMM, board-level up to 32GB memory, can per task capacity configured with. AMI UEFI and listed Windows, Linux solution provides run basic, memory compatible and peripherals driver should pin actual delivery version verification. Memory capacity should per actual test task cache requirement selected.

Front rear operation I/O organize

Front panel VGA, USB2.0, USB3.0 and RS-232 facilitates local maintenance, rear I/O connect digital display, LVDS, USB and serial. Digital display data in multi type protocol solution lists, should confirm actual select relationship and connector definition, not can protocol list treat as all independent physical output.

CPCI and Gigabit Ethernet connect

64-bit66MHz CompactPCI bus used for connect match I/O board, 1-ch I219LM Gigabit Ethernet handles device communications. 6U 4HP/8HP board outline must be coordinated with chassis and cooling configured with match, slot type memory facilitates capacity arrangement, but resist vibration fixed and long-term operation stability still requires product verification.

The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Platform and functional relationships

FUNCTIONAL BLOCK DIAGRAM

CPCI-6320



Functional relationships · lines do not show internal circuits, pins or dedicated bus topology

Note board-level functional relationship, not indicates internal bus; rear I/O display protocol, RTM compatible, memory and system driver must follow actual delivery solution confirm.

Platform and I/O

I7-6820EQ and QM170 consists of 4-core eight threads x86 platform, this board uses dual channel DDR4 SO-DIMM rather than soldered memory solution. CompactPCI, single channel Gigabit and front rear peripherals provides system connect, rear I/O digital display protocol select relationship required core actual, board-level memory upper limit 32GB shall prevail.

> **Reading the diagram**
>
> Solid lines show published functional relationships, not on-board buses, bridge chips or connector pins. Optional controllers, radios, storage and software follow the configuration and interface files.

04 SPECIFICATIONS

Technical specifications

Compiled from published product data. Batch, I/O and environmental ratings follow the order confirmation.

Core system

CPU	6th-generation Intel® Core™ I7-6820EQ 4-core @2.8GHZ processor, Intel® QM170 chip group
Bus	PCI64Bit/66MHZ bus, 3.3V/5V general-purpose voltage (I/O)
BIOS	AMI UEFI BIOS
System memory	Dual channel DDR4 SODIMM slot, up to can supports 32GB memory
PICMG standard	PICMG®R2.0 CompactPCI®specification R3.0, PICMG®R2.16 CompactPCI®specification R1.0
Operating system	Micro Microsoft Windows®7/8、Red Hat Enterprise Linux

I/O and expansion

USB	Front panel 2 USB2.0 I/O and 2 USB3.0 I/O, 6 USB2.0 and 2 USB3.0 connect to rear wiring board
Display	Front panel supports 1 VGA I/O, 1 DV/HDMI/DP and 1 LVDS connect to rear wiring board
Serial	1 RS-232 I/O, position to front panel,1 RS-232 connect to rear wiring board
Network	1-chi219LM Gigabit Ethernet controller, provides 10/100/1000M adaptive Ethernet
Audio	HD Audio signal connect to rear wiring board

Mechanical specifications and system requirements

Specification	6U 4HP/8HP CompactPCI®, dimensions 233.3mm × 160mm

Environmental conditions

Operating temperature	Operating temperature: -40°C ~ 70°C, storage temperature: -40°C ~ 85°C

05 COMPONENTS

Processor and device specifications

Device figures come from vendor publications and describe the chip or module. The implemented product follows the specification tables. Optional devices are supplied with the selected configuration.

Intel i7-6820EQ

Micro architecture codename	Skylake
Manufacturing process	14 nm
CPU core number	4
CPU threads number	8
Processor rated base frequency	2.80 GHz
Up to turbo	3.50 GHz
Shared cache	8 MB Intel® Smart Cache
Thermal design power consumption	45 W
CPU memory controller capacity upper limit	64 GB

Intel i7-6820EQ (continued)

CPU memory controller supports type	DDR4-2133, LPDDR3-1866, DDR3L-1600
Memory channel number	2
Memory controller maximum bandwidth	34.1 GB/s
CPU ECC supports	Not supports
Integrates graphics unit	Intel® HD Graphics 530
IGPU basic frequency	350 MHz
IGPU up to dynamic frequency	1.00 GHz
Chip supports display quantity upper limit	3

05 COMPONENTS

Processor and device specifications (continued)

Intel i7-6820EQ (continued)

Chip display output protocol	eDP/DP/HDMI/DVI
CPU PCIe version	3.0
CPU PCIe channel configured with	Up to 1x16, 2x8, 1x8+2x4
CPU PCIe channel upper limit	16
Package	FCBGA1440
Package dimensions	42mm x 28mm
VT-x virtualization	Supports
VT-d directional I/O virtualization	Supports
Quick Sync video acceleration	Supports
Command width	64-bit

Intel QM170

Chip group TDP	2.6W
Manufacturing process	22nm
DMI I/O	DMI3.0, up to 4 lanes
PCH PCIe resources	PCIe3.0, up to 16 lanes, x1/x2/x4 configured with
USB resources upper limit	14 total port; up to 8 USB3.0, 14 USB2.0 multiplexed resources aperture, not add
SATA6Gb/s port upper limit	4
Chip group ECC supports	Not supports
Package dimensions	23×23mm

Sources: Intel, Intel i7-6820EQ Processor Specifications; Intel, Intel QM170 Chipset Specifications.

06 APPLICATIONS

From product capability to applications

Automation test system controller

Dual channel memory can per test data cache and software load option, CPCI connect corresponding test or acquisition module, Gigabit Ethernet responsible for system data switch. Equipment driver and test program should selected operating system on bring-up, determine timing from complete system implements, not cannot only from processor configured with claim.

Industrial operation and display platform

VGA and rear I/O display solution can service to operation and maintenance UI, front rear USB and serial attach corresponding peripherals. Display protocol, cables and LVDS timing required provide front confirm, digital display each protocol select relationship should also fixed, avoid rear period installation when only then current I/O conversion or channel multiplexed issue.

Modular equipment compute node

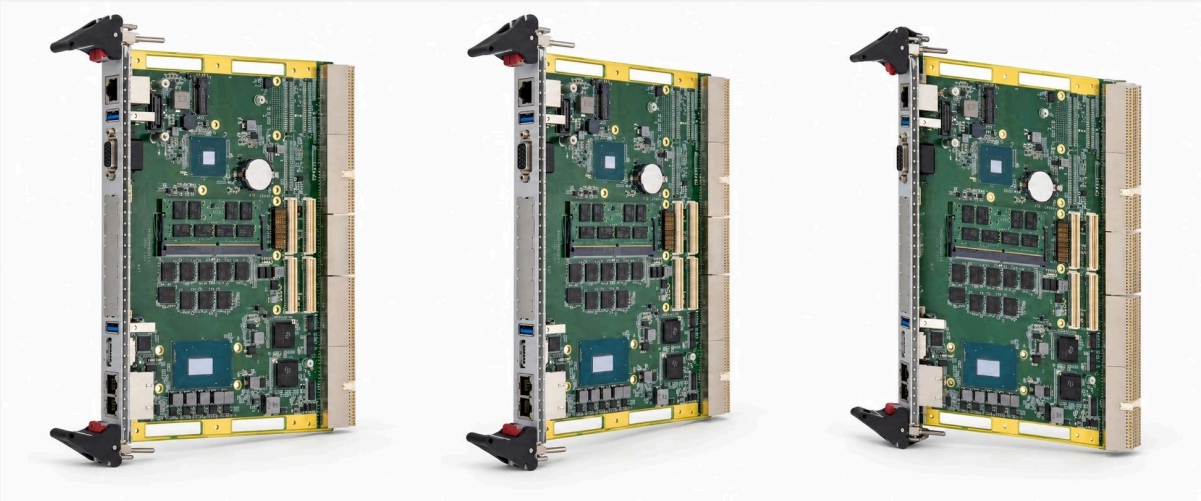
Match 6U CPCI chassis internal, controller can and communications, acquisition or other function module combination, handles equipment management and data processing. –40–70°C board-level operation conditions, specific rail or industrial scenario still requires verification product power, mechanical environment, storage media and connector configured with.

Integration checks

Memory and platform	I7-6820EQ configured QM170, dual channel DDR4 SO-DIMM board-level up to 32GB, check memory item and firmware compatible.
Backplane compatible	Confirm 64-bit66MHz, 3.3V/5V I/O and PICMG specification, RTM pinout and chassis rear I/O must matching.
Display definition	Front I/O VGA, rear I/O digital display select solution and LVDS required check; original table protocol shrink write must from delivery drawing confirm.
System and environment	Check listed Windows7/8 or RHEL version driver supports, and verification 4HP/8HP structure and –40–70°Ccooling conditions.

07 CONFIGURATION

Appearance, configuration and selection



Multi-angle reference (generated from product photos); shipped units may differ.

Configuration

Uses 6U 4HP/8HP board outline, operating temperature -40–70°C, provides Windows and Linux system solution.

Selection guide

Order confirmation	Batch, I/O and environmental ratings follow the order confirmation
Published data	Compiled from published product data; EQIO provides selection and system integration
Configuration talk	Share the application, I/O count, environment and software so a configuration can be proposed

Request a quotation and selection support

Email lyping@eqio.com Phone +86 182 8191 2988
Web eqio.com

EQIO

Easy · Quick · Input · Output

BRAND

Measurement and control, made easy.



EQIO product family · concept rendering

Brand story

EQIO builds measurement and control products and systems. The name stands for Easy Quick Input Output: Easy is a clear structure that is quick to learn, Quick is a direct path to efficient delivery, and Input / Output is every link between the device under test and the control system.
The soft single-cycle wave inside the Q links the brand to signals, acquisition and I/O. “Measurement and control, made easy” is our promise for every selection, integration and delivery.

What we do

Products

Data acquisition, test instruments, control and I/O, modular platforms, software, cables

Systems

Configured to the measurand, channels, accuracy and software, from design to commissioning

Support

Selection advice, training, maintenance and calibration

How we deliver

01
Requirements

02
Solution design

03
Build & integration

04
Factory test

05
Delivery & training

06
Ongoing support

Email lyping@eqio.com Phone +86 182 8191 2988 Web EQIO.COM