SECO

PRODUCT GUIDE

SECO

PRODUCT GUIDE

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Legend

EXTREME	All components qualified for industrial temperature range (-40°C ÷ +85°C)
J! JUST! EMBEDDED	"Ready-to-use" and "ready-to-market" cost effective products which exclusively support SoC native features
CROSS PLATFORM Philosophy	Cross-compatible platform with x86 and ARM solutions

ABOUT SECO

SECO is a **world-leader** in electronic embedded solutions

Spanning its **35+ years of experience**, SECO has shown the ability to adapt its know-how to new, challenging customers' needs, and to provide cutting edge solutions to its partners.

Creativity and innovation with a strong R&D area

Partnership with the most important **technological players**

Collaboration with important **research institutes**

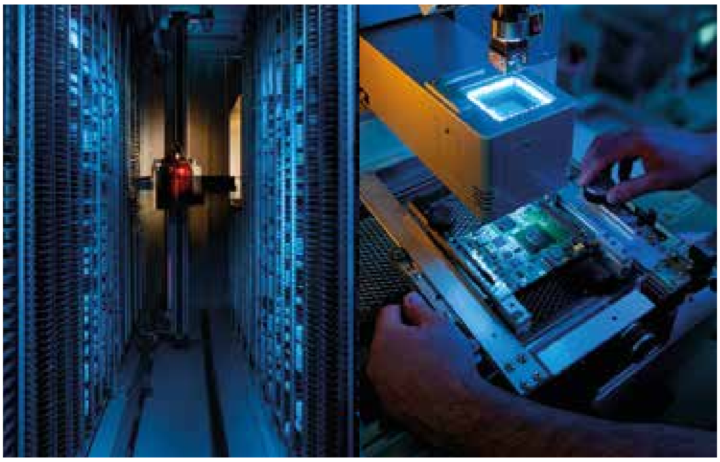
In house manufacturing and System **Integration Plants**

Worldwide presence

Manufacturing Unit

Reliable and safe embedded solutions

SECO's in-house manufacturing process is 100% compliant to ROHS regulations and not only: the high quality and reliability of SECO's products are guaranteed by each manufacturing unit through standard industry certifications, including UNI EN ISO 9001:2008 and UNI EN ISO 13485:2012.



SGS **Certified UNI EN ISO 9001:2008**
Quality management systems

SGS **UNI EN ISO 13485:2012**
Quality management systems in the field of medical equipment

UNI EN ISO 14001
(in progress)

RoHS COMPLIANT

IPC

JST

Dodd-Frank Act

Standard products, **custom** solutions

COM EXPRESS™

PRODUCT LINES
STANDARDS

CARRIER BOARDS

DEVELOPMENT KITS
CROSS PLATFORM

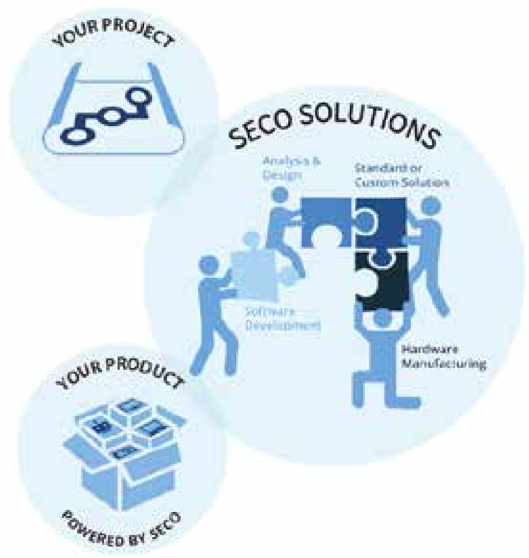
BOXED SOLUTIONS

Design, development and implementation of C**USTOM** EMBEDDED SYSTEMS

When the customer needs require **customization**, SECO develops end-to-end **“tailored” solutions**.

In addition to the creation of an embedded system in compliance with the latest technological standards, SECO supports its customers with a range of solutions that allow to configure certain aspects ad hoc, in order to tailor and integrate it to their products.

Thanks to a team of highly qualified collaborators and the presence within the company of R&D departments specializing in different areas, SECO is thus able to provide its customers with timely assistance and support in:


YOUR PROJECT
SECO SOLUTIONS
Analysis & Design
Standard or Custom Solution
Software Development
Hardware Manufacturing
YOUR PRODUCT
POWERED BY SECO

- Hardware Engineering & Development
- BIOS Engineering & Development
- Drivers Engineering & Development
- Software Development
- Firmware Development
- Mechanical Engineering & Development

Our Partners

Over the years, SECO has established and consolidated relationships with major international companies in the electronics industry as well as centers of excellence, universities and research institutes that support the company's direct and dynamic vision for continued research regarding new technologies to be integrated into increasingly complex projects.

Technological Partners

Intel®	**NXP**	**AMD**	**NVIDIA®**

Supported OS

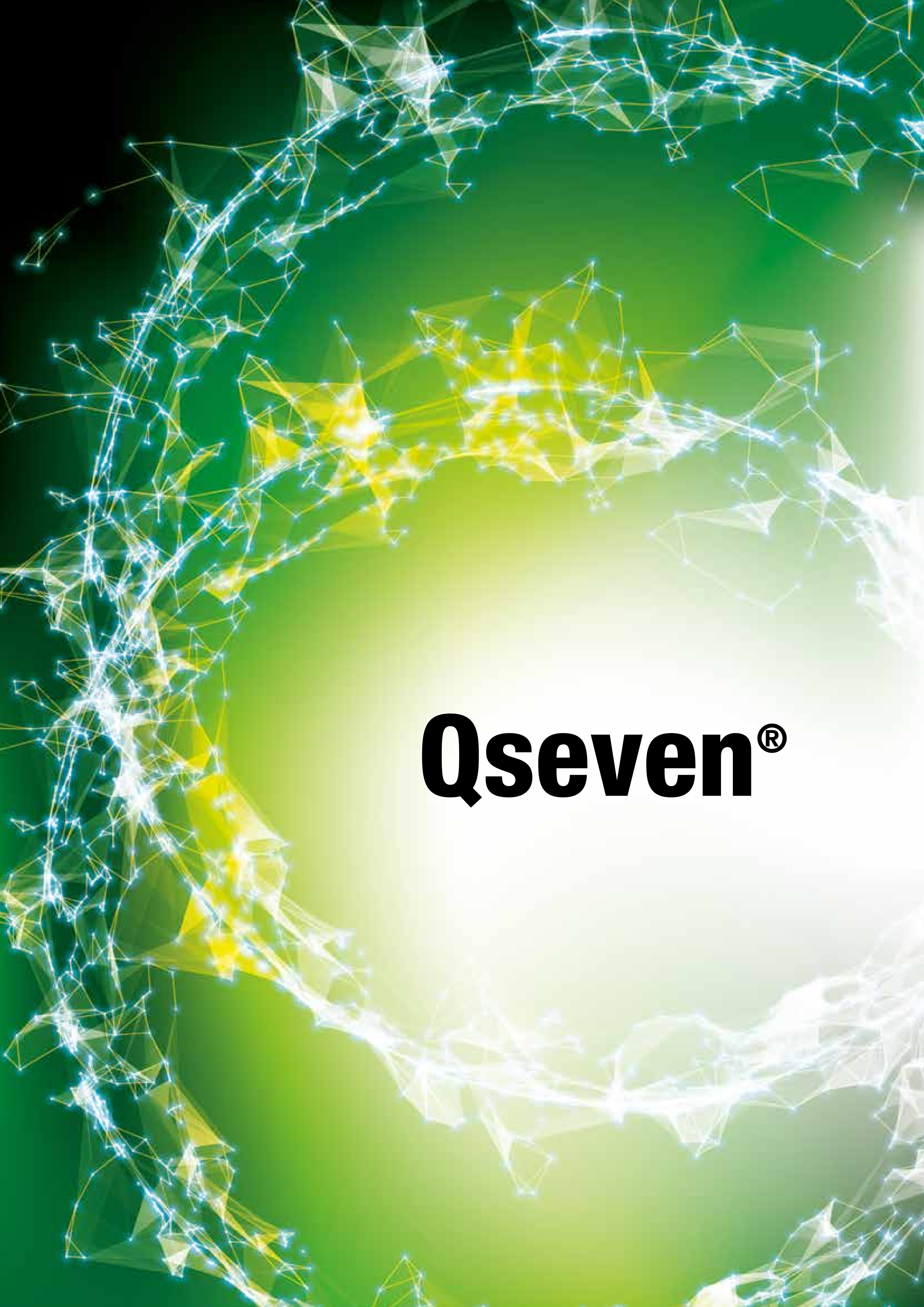
Microsoft® Windows	**Linux**	**Android**

Main fields of application

Innovation, creativity and constant awareness of the needs of a constantly evolving market stimulate SECO to develop state of the art solutions and products tailored to best satisfy its customers' needs in a multitude of different fields of application.

Turning ideas into solutions and products capable of improving the efficiency and performance of the technologies all around us: this is the challenge that SECO has taken on for over thirty-five years and which makes it a benchmark in the embedded sector.

Automation
Automotive
Avionics
Biomedical/Medical devices
Defense and security applications
Digital signage - Infotainment
E - health Telecare
Energy
Fitness Equipment
Gaming
HMI
Home Automation
Home Entertainment
Industrial Automation and Control
Info Kiosks
Internet of Things
In-Vehicle Infotainment Systems
Measuring instruments
Mobile devices
Multimedia devices
PDA Electronics
Point of Sales
Portable devices
Robotics
Surveillance
Telco
Thin clients
Transportation
Visual Computing
Wireless Technologies



Qseven®

The Computer-On-Module approach

Each time a new product must be placed on the market, it becomes necessary to spend a lot of time in the development and successive validation phases. Therefore, any solution that allows reducing time, or recycling any of the work already done, is particularly appreciated in a world where the time-to-market requirement is getting shorter by the day. For this purpose, the modular approach represented by Computer-On-Module solutions, like Qseven® and COM Express™ modules, becomes an optimal solution, which can ensure compatibility, long term availability and scalability.

The availability of standard interfaces allows the customers to focus only on designing the carrier board, which can be perfectly tailored to the design requirements, and taking into consideration possible future evolutions. The scalability offered by a modular approach allows, taking advantage of standard off-the-shelf modules, choosing the one that best fits the project requirements, and focusing all development resources on design-specific interfaces. In this way, possible problems due to obsolescence of the devices are reduced to a minimum: it will be possible at any time to replace the COM module with one of higher performance or even of a newer generation, while maintaining compatibility and therefore reducing validation time and cost.

By making all the interfaces available through only a few pins, COM solutions allow a significant reduction of complexity and effort required for the development of the customer's specific application interfaces: in most cases, only the routing of the interface buses to application-dedicated connectors is required, whether standard or not. Furthermore the software development can be optimized with this kind of approach: the manufacturer of the module provides the necessary drivers for the module, and also the support (via BIOS or BSP) of the standard peripherals contained on the reference carrier board. The customer can therefore focus on the development of the application software, relying on the continuity of support for the hardware layer.

Last but not least, the use of off-the-shelf standard modules combined with custom carrier boards can help in reducing global costs, even for low-volume mass production. In these cases, due to the low volume of production, it would be not possible to obtain low prices on the most expensive components, like the processor, the memory chips and so on. By using standard modules, instead, it is possible to reduce the impact of these devices on the final cost of the assembled system.

Qseven® Standard

Benefits:

Module-Based Application
Low Power Consumption
Interchangeability Among Architectures
Low Impact on OS Migration
Upgradable Solutions
Reduced Time to Market

Qseven® Compact & Cost Efficient

The Qseven® standard has proven itself to be the most compact & cost efficient Computer On Module on the embedded market.
The design flexibility of the architecture is the same as the other COMs like ETX®, XTX™ or COM Express™: by replacing the board it becomes possible to diversify the product range through the use of different architectures. The Qseven® standard features PCI Express®, ExpressCard®, Serial ATA®, Secure Digital I/O interface, DisplayPort™ (or TMDS or SDVO) interfaces, USB 2.0, High Definition Digital Audio, LPC interface, Gigabit Ethernet, LVDS Display interface. All the signals arrive to the carrier through a 230 pin MXM connector.
SECO provides complete system solutions for Qseven®.

SGeT
STANDARDIZATION
GROUP FOR
EMBEDDED
TECHNOLOGIES

SECO is one of the founding members of SGET.

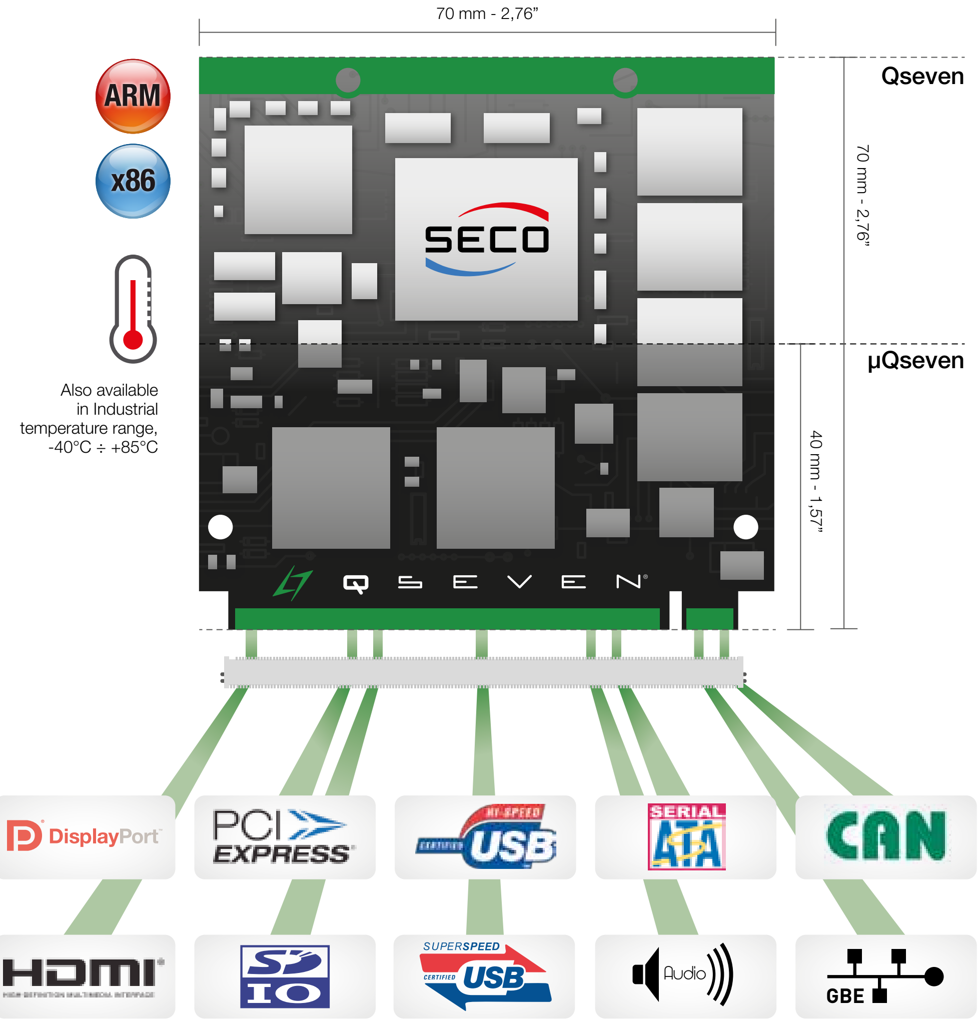
Qseven® Features Overview

The Qseven® mandatory and optional features. The table shows the minimum and maximum required configuration of the feature set.

Qseven® Supported Features

System I/O Interface	ARM/RISC Based Minimum Configuration	X86 Based Minimum Configuration	Maximum Configuration
PCI Express lanes	0	1 (x1 link)	4
Serial ATA channels	0	0	2
USB 2.0 ports	3	4	8
USB 3.0 ports	0	0	2
LVDS channels	0	0	Dual Channel 24 bits
Embedded DisplayPort	0	0	2
DisplayPort, TMDS	0	0	1
High Definition Audio / AC'97 / I2S	0	0	1
Ethernet 10/100 Mbit/Gigabit	0	0	1 (Gigabit Ethernet)
UART	0	0	1
Low Pin Count bus	0	0	1
Secure Digital I/O 8-bit for SD/MMC cards	0	0	1
System Management Bus	0	1	1
I^{2}C Bus	1	1	1
SPI Bus	0	0	1
CAN Bus	0	0	1
Watchdog Trigger	1	1	1
Power Button	1	1	1
Power Good	1	1	1
Reset Button	1	1	1
LID Button	0	0	1
Sleep Button	0	0	1
Suspend To RAM (S3 mode)	0	0	1
Wake	0	0	1
Battery low alarm	0	0	1
Thermal control	0	0	1
FAN control	0	0	1

Qseven® STANDARD Rev. 2.0 specification

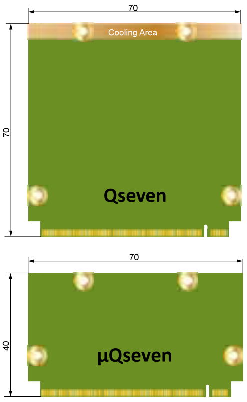

70 mm - 2,76”
Qseven
70 mm - 2,76”
µQseven
40 mm - 1,57”
ARM
x86
SECO
QSEVEN
DisplayPort
PCI EXPRESS
HI-SPEED CERTIFIED USB
SERIAL ATA
CAN
HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE
SD IO
SUPERSPEED CERTIFIED USB
Audio
GBE

Also available
in Industrial
temperature range,
-40°C ÷ +85°C

Mechanic and Cooling

Compact size

- Quadratic 7 cm (~2,76” x ~2,76”)
- Rev. 2.0 allows for a microQseven Size 4 x 7 cm (~2,76” x 1,57”)
- Solid mechanical mounting
- Cost efficient card edge connector
- Rugged 1.2 mm PCB thickness


70
Cooling Area
70
Qseven
70
40
µQseven

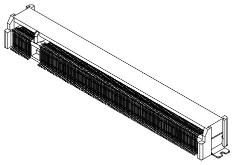
Cooling interface

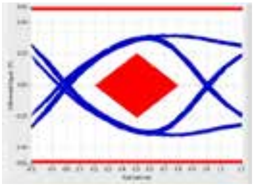
- Top edge defined for heat transfer
- Heat transfer from CPU, Chipset and DRAM enhanced via copper layers
- Heatspreader defined for high power versions (max. 12 W)

MXM Connector

MXM2 edge connector

- Multiple Sources Speedtech, Lotes, Aces and Yamaichi (automotive certified)
- 230 positions, .020” pitch, SMT
- 5.5 and 7.8 mm height versions
- Certified for rugged mobile applications and for high speed serial buses (PEG bus)
- Low cost connector
- 30µ gold plated versions for industrial applications





Q7-974

Qseven® standard module with the Intel® Atom™ E3800 and Celeron® families (“Bay Trail”) SoC

x86 performance on a low-power module

HIGHLIGHTS

- SATA Flash Drive soldered on-board
- Security enhancement and content protection
- Available in Industrial temperature range
- Integrated 64-bit memory controller
- Low power solution

Moon Island platform - Intel IoT gateway solution

MAIN FIELDS OF APPLICATION

HMI

Industrial Automation and Control

Biomedical/ Medical devices

Measuring Instruments

FEATURES

Processor	Intel® Atom™ **E3845**, Quad Core @1.91GHz, 2MB Cache, 10W TDP Intel® Atom™ **E3827**, Dual Core @1.75GHz, 1MB Cache, 8W TDP Intel® Atom™ **E3826**, Dual Core @1.46GHz, 1MB Cache, 7W TDP Intel® Atom™ **E3825**, Dual Core @1.33GHz, 1MB Cache, 6W TDP Intel® Atom™ **E3815**, Single Core @1.46GHz, 512KB Cache, 5W TDP Intel® Celeron® **J1900**, Quad Core @2.0GHz, 2MB Cache, 10W TDP Intel® Celeron® **N2930**, Quad Core @1.83GHz, 2MB Cache, 7.5W TDP Intel® Celeron® **N2807**, Dual Core @1.58GHz, 1MB Cache, 4.3W TDP
Max Cores	4
Max Thread	4
Memory	Soldered on-board DDR3L memory E3845, E3827, J1900, N2930: up to 8GB Dual-Channel DDR3L @ 1333MHz E3826: up to 8GB Dual-Channel DDR3L @ 1066MHz N2807: up to 4GB Single-Channel DDR3L @ 1333MHz E3825, E3815: up to 4GB Single-Channel DDR3L @ 1066MHz
Graphics	Integrated Intel® HD Graphics 4000 series controller Dual independent display support HW decoding of H.264, MPEG2, MVC, VC1, VP8, MJPEG formats HW encoding of H.264, MPEG2 and MVC formats
Video Interfaces	HDMI or Multimode Display Port interface Embedded Display Port or 18 / 24 bit dual channel LVDS interface Additional VGA interface (optional external adapter is required)
Video Resolution	HDMI: Up to 1920x1080p@60Hz Display Port, eDP, CRT: Up to 2560x1600@60Hz Optional LVDS interface: Up to 1920x1200@60Hz
Mass Storage	Up to 2 x external SATA channels SD interface Optional SATA Flash Drive soldered on-board
Networking	Gigabit Ethernet interface
USB	1 x USB 3.0 Host port 6 x USB 2.0 Host ports (one shared with USB 3.0 interface)

PCI-e	3 x PCI-e x1 lanes
Audio	HD Audio interface
Serial Ports	1 x Serial port (TTL interface)
Other Interfaces	I2C Bus LPC Bus SM Bus Thermal / FAN management SPI interface Power Management Signals
Power Supply	+5V$_{DC}$ ± 5%
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Microsoft® Windows Embedded Compact 7 Linux (32 / 64 bit) Yocto
Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	70 x 70 mm (2.76” x 2.76”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Q7-A36

Qseven® standard module with the Intel® Atom™ E3800 and Celeron® families (“Bay Trail”) SoC, with eMMC and Camera Interface

Mobile-oriented with eMMC and Camera Interface

HIGHLIGHTS

- eMMC drive on-board
- Available in Industrial temperature range
- Low power solution
- Camera Interface
- Integrated 64-bit memory controller

Moon Island platform - Intel IoT gateway solution

MAIN FIELDS OF APPLICATION

HMI

Industrial Automation and Control

Portable Devices

In-vehicle infotainment systems

FEATURES

Processor	Intel® Atom™ **E3845**, Quad Core @1.91GHz, 2MB Cache, 10W TDP Intel® Atom™ **E3827**, Dual Core @1.75GHz, 1MB Cache, 8W TDP Intel® Atom™ **E3826**, Dual Core @1.46GHz, 1MB Cache, 7W TDP Intel® Atom™ **E3825**, Dual Core @1.33GHz, 1MB Cache, 6W TDP Intel® Atom™ **E3815**, Single Core @1.46GHz, 512KB Cache, 5W TDP Intel® Celeron® **J1900**, Quad Core @2.0GHz, 2MB Cache, 10W TDP Intel® Celeron® **N2930**, Quad Core @1.83GHz, 2MB Cache, 7.5W TDP Intel® Celeron® **N2807**, Dual Core @1.58GHz, 1MB Cache, 4.3W TDP
Max Cores	4
Max Thread	4
Memory	Soldered on-board DDR3L memory E3845, E3827, J1900, N2930: up to 8GB Dual-Channel DDR3L 1333MHz E3826: up to 8GB Dual-Channel DDR3L 1066MHz N2807: up to 4GB Single-Channel DDR3L 1333MHz E3825, E3815: up to 4GB Single-Channel DDR3L 1066MHz
Graphics	Integrated Intel® HD Graphics 4000 series controller Dual independent display support HW decoding of H.264, MPEG2, MVC, VC1, VP8, MJPEG formats HW encoding of H.264, MPEG2 and MVC formats
Video Interfaces	HDMI or Multimode Display Port interface Embedded Display Port or 18 / 24 bit dual channel LVDS interface **Optional Camera interface**
Video Resolution	HDMI: Up to 1920x1080p@60Hz Display Port, eDP: Up to 2560x1600@60Hz Optional LVDS interface: Up to 1920x1200@60Hz
Mass Storage	2 x external SATA channels SD interface **Optional eMMC Drive soldered on-board**
Networking	Gigabit Ethernet interface
USB	1 x USB 3.0 Host port 6 x USB 2.0 Host ports (one shared with USB 3.0 interface)

PCI-e	3 x PCI-e x1 lanes
Audio	HD Audio interface
Serial Ports	1 x Serial port (TTL interface)
Other Interfaces	I2C Bus LPC Bus SM Bus Thermal / FAN management SPI interface Power Management Signals
Power Supply	$+5V_{DC}$ ± 5%
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Microsoft® Windows Embedded Compact 7 Linux (32 / 64 bit) Yocto
Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	70 x 70 mm (2.76” x 2.76”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Q7-A29

Qseven® standard module with the AMD Embedded G-Series System-on-Chip

Powerful graphics, ECC Ram, Highly expandable

eKabini &
Steppe Eagle NEW
platforms

HIGHLIGHTS

- Combines a low-power Multi Core CPU and advanced GPU onto a single chip
- Combines the I / O controller onto the same chip as the APU, making it the ideal fit for applications requiring ultra-low power and small form factor processors

MAIN FIELDS OF APPLICATION

Automation

Industrial Automation and Control

Thin client

Information and point-of-sale kiosks

FEATURES

Processor	AMD **GX-415GA**, Quad Core @ 1.5GHz, 2MB L2 Cache, TDP 15W AMD **GX-217GA**, Dual Core @ 1.65GHz, 1MB L2 Cache, TDP 15W AMD **GX-210HA**, Dual Core @ 1.0GHz, 1MB L2 Cache, TDP 9W AMD **GX-210JA**, Dual Core @ 1.0GHz, 1MB L2 Cache, TDP 6W AMD **GX-411GA**, Quad Core @1.1GHz, 2MB L2 Cache, TDP 15W, industrial grade temperature AMD **GX-209HA**, Dual Core @ 1.0GHz, 1MB L2 Cache, TDP 9W, industrial grade temperature
	AMD **GX-412HC**, Quad Core @ 1.2GHz, 2MB L2 Cache, TDP 7W AMD **GX-222GC**, Dual Core @ 2.2GHz, 1MB L2 Cache, TDP 15W AMD **GX-216HC**, Dual Core @ 1.6GHz, 1MB L2 Cache, TDP 10W, industrial grade temperature AMD **GX-212JC**, Dual Core @ 1.2GHz, 1MB L2 Cache, TDP 6W AMD **GX-210JC**, Dual Core @ 1.0GHz, 1MB L2 Cache, TDP 6W, industrial grade temperature
Max Cores	4
Memory	Up to 8GB DDR3 1600MHz Single-Channel with ECC soldered on-board (1333MHz memory with GX-210HA;1066MHz memory with GX-411GA, GX-210JA and GX-209HA)
Graphics	Embedded AMD HD RADEON GPUs HD8330E@500MHz (GX-415GA), HD8280E@450MHz (GX-217GA) HD8210E@300MHz (GX-210HA, GX-411GA) HD8180@225MHz (GX-210JA, GX-209HA) Dual independent display support Supports DirectX® 11.1, OpenGL rel. 4.2 and OpenCL™ rel. 1.2
Video Interfaces	HDMI **or** Display Port interface Embedded Display Port **or** 18 / 24 bit single / dual channel LVDS interface Additional VGA interface (optional external adapter is required)
Video Resolution	HDMI: Up to 1920x1200 @ 60Hz Display Port, eDP: Up to 2560x1600 @ 60Hz CRT: Up to 2048x1536 @ 60Hz Optional LVDS interface: Up to 1920x1200 @ 60Hz

Mass Storage	Up to 2 x external SATA channels SD interface Optional SATA Flash Drive soldered on-board
Networking	Gigabit Ethernet interface
USB	1 x USB 3.0 Host port 6 x USB 2.0 Host ports
PCI-e	4 x PCI-e x1 groupable lanes (3 x PCI-e x1 lanes with GX-210JA)
Audio	HD Audio interface
Serial Ports	1 x Optional Serial port (TTL interface)
Other Interfaces	I2C / LPC / SM Bus Thermal / FAN management Optional UART and SPI Power Management Signals
Power Supply	$+5V_{DC} \pm 5\%$
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Linux 32 / 64 bit
Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	70 x 70 mm (2.76" x 2.76")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Q7-928

Qseven® standard module with NXP i.MX6 Processor

Optimal balance of performance and power

HIGHLIGHTS

- A scalable multi-core ARM® Cortex™-A9 architecture in Qseven® standard modular form factor
- Combines high-graphics performance with power-efficient processing capabilities
- OpenGL (FULL) and OpenGL ES 2.0 3D Graphics supporting up to 3 independent displays (only up to 2 displays with i.MX6DL and i.MX6S)
- Flexible solution: from multi-display platforms to mobile fanless applications

MAIN FIELDS OF APPLICATION

- Industrial Automation and Control
- Digital Signage - Infotainment
- Automotive
- Avionics
- Energy
- Surveillance
- Transportation
- Robotics

FEATURES

Processor	NXP i.MX6 Family, based on ARM® CORTEX-A9 processors - **i.MX6S** Solo - Single core up to 1GHz - **i.MX6DL** Dual Lite - Dual core up to 1GHz per core - **i.MX6D** Dual - Dual core up to 1GHz per core - **i.MX6Q** Quad - Quad core up to 1GHz per core
Max Cores	4
Memory	Up to 4GB DDR3L on-board (up to 2GB with i.MX6S)
Graphics	Dedicated 2D Hardware accelerator Dedicated 3D Hardware accelerator, supports OpenGL® ES 2.0 3D Dedicated Vector Graphics accelerator supports OpenVG™ (only i.MX6D and i.MX6Q) Supports up to 3 independent displays with i.MX6D and i.MX6Q Supports 2 independent displays with i.MX6DL and i.MX6S
Video Interfaces	1 x LVDS Dual Channel or 2 x LVDS Single Channel 18 / 24 bit interface HDMI Interface 1.4 Video Input Port / Camera Connector
Video Resolution	LVDS, up to 1920x1200 HDMI, up to 1080p
Mass Storage	On-board eMMC drive, up to 32 GB SD / MMC / SDIO interface 1 x µSD Card Slot on-board 1 x External SATA Channel (only available with i.MX6D and i.MX6Q)
Networking	Gigabit Ethernet interface
USB	1 x USB OTG interface 4 x USB 2.0 Host interfaces
PCI-e	1 x PCI-e x1 lane (only PCI-e 1.1 and Gen2 are supported)
Audio	AC'97 Audio interface I2S

Serial Ports	2 x Serial ports (TTL interface) CAN port interface
Other Interfaces	I2C Bus LPC Bus SM Bus Power Management Signals
Power Supply	$+5V_{DC}$ ± 5%
Operating System	Linux Yocto Microsoft® Windows Embedded Compact 7
Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	70 x 70 mm (2.76" x 2.76")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Q7-922

Qseven® standard module with NVIDIA® Tegra® T30 Processor

High performance graphics, low power solution

HIGHLIGHTS

- A Quad-Core ARM® Cortex™-A9 Low Power CPU for powerful graphics and Extreme Multitasking
- Graphics engine powered by the 12 cores-ULP GeForce GPU with dedicated Processors for 1080p Video Playback
- Capable of reproducing High Resolution 3D Videos

MAIN FIELDS OF APPLICATION

Gaming

Digital Signage - Infotainment

Thin client

FEATURES

Processor	NVIDIA® Tegra® T30 with Quad ARM® CORTEX-A9 MPCore® CPU, 1.3GHz per Core
Max Cores	4
Memory	Up to 2 GB DDR3 on-board soldered memory
Graphics	Embedded NVIDIA® ULP GeForce® GPU Integrated High Definition Audio-Video Processor Dual independent display support
Video Interfaces	LVDS Single / Dual Channel 18 / 24 Bit interface HDMI 1.4a Interface Video Input Port / Camera Connector
Video Resolution	HDMI: up to 1920 x 1080p LVDS: up to 2048 x 1536
Mass Storage	Up to 16 GB on-board soldered eMMC drive 1 x SATA Channel microSD Slot on-board 4-bit SD / MMC interface
Networking	Gigabit Ethernet interface
USB	6 x USB 2.0 Host ports
PCI-e	1 x PCI-e x4 lane, or 2 x PCI-e x2 lanes (with support for 2 x PCI-e x1 devices)
Audio	HD Audio Interface
Serial Ports	2 serial ports (Tx, Rx signals) CAN Bus Interface

Other Interfaces	I2C, SM Bus, LPC, SPI One Wire Interface Thermal Cooling Interface Power management signals
Power Supply	$+5V_{DC}$ ± 5%
Operating System	Linux
Operating Temperature*	0°C ÷ +60°C (Commercial version) -20°C ÷ +70°C (Extended version)
Dimensions	70 x 70 mm (2.76” x 2.76”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Boston, skyline

µQ7-A76-J

µQseven® standard module with the Intel® Atom™ E3800 and Celeron® families (“Bay Trail”)

Smallest x86 standard module at proprietary costs

JUST! EMBEDDED

“Ready-to-use” and “ready-to-market” cost-effective product which exclusively supports SoC native features

HIGHLIGHTS

- The smallest Intel 64-bit SoC based standard module on the market
- High performance-power ratio for compact or portable devices
- Industrial Internet of Things (IIoT) basic building block
- Cost-effective solution for low budget designs

Moon Island platform - Intel IoT gateway solution

MAIN FIELDS OF APPLICATION

Industrial Automation and Control

Internet of Things

PDA Electronics

Biomedical/Medical devices

Surveillance

Transportation

Robotics

FEATURES

Processor	Intel® Celeron® **N2807**, Dual Core @1.58GHz, 1MB Cache, 4.3W TDP Intel® Atom™ **E3815**, Single Core @1.46GHz, 512KB Cache, 5W TDP Intel® Atom™ **E3825**, Dual Core @1.33GHz, 1MB Cache, 6W TDP
Max Cores	2
Max Thread	2
Memory	Soldered on-board DDR3L memory E3825, E3815: up to 4GB Single-Channel DDR3L @ 1066MHz N2807: up to 4GB Single-Channel DDR3L @ 1333MHz
Graphics	Integrated Intel® HD Graphics 4000 series controller Dual independent display support HW decoding of H.264, MPEG2, MVC, VC1, VP8, MJPEG formats HW encoding of H.264, MPEG2 and MVC formats
Video Interfaces	Multimode Display Port interface 18 / 24 bit dual channel LVDS interface
Video Resolution	DP++ (HDMI compatible): Up to 2560x1600@60Hz LVDS interface: Up to 1920x1200@60Hz
Mass Storage	2 x external SATA channels SD interface Optional eMMC drive soldered on-board
Networking	Gigabit Ethernet interface
USB	1 x USB 3.0 Host port 4 x USB 2.0 Host ports (one shared with USB 3.0 interface)
PCI-e	3 x PCI-e x1 lanes Gen2
Audio	HD Audio interface
Serial Ports	1 x Serial port (TTL interface, Tx / Rx only)

Other Interfaces	I2C Bus LPC Bus SM Bus Thermal / FAN management Power Management Signals
Power Supply	+5V$_{DC}$ ± 5%
Operating System	Microsoft® Windows 7 Microsoft® Windows 8.1 Microsoft® Windows 10 Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 Microsoft® Windows Embedded Standard 8 Microsoft® Windows Embedded Compact 7 Linux Yocto
Operating Temperature*	0°C ÷ +60°C
Dimensions	40 x 70 mm (1.57” x 2.76”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

µQ7-962

µQseven® standard module with NXP i.MX6 Processor

Optimal balance of performance and size

HIGHLIGHTS

- µQseven® module based on the ARM® Cortex™-A9 i.MX6 SoC, a fully scalable solution from a high performance Quad Core CPU to an energy-efficient and cost-effective Solo Core solution
- OpenGL / ES 2.0 3D Graphics and up to 3 independent displays
- A flexible solution, suitable for high end, multi display solutions as well as energy-saving smart portable devices
- Available in Industrial Temperature range

MAIN FIELDS OF APPLICATION

HMI

Automation

PDA Electronics

Biomedical/Medical devices

Wireless Technologies

FEATURES

Processor	NXP i.MX6 Family, based on ARM® CORTEX-A9 processors - **i.MX6S** Solo - Single core up to 1GHz - **i.MX6DL** Dual Lite - Dual core up to 1GHz per core - **i.MX6D** Dual - Dual core up to 1GHz per core - **i.MX6Q** Quad - Quad core up to 1GHz per core
Max Cores	4
Memory	Up to 2GB DDR3L on-board (up to 1GB with i.MX6S)
Graphics	Dedicated 2D Hardware accelerator Dedicated 3D Hardware accelerator, supports OpenGL® ES2.0 3D Dedicated Vector Graphics accelerator supports OpenVG™ (only i.MX6D and i.MX6Q) Supports up to 3 independent displays with i.MX6D and i.MX6Q Supports 2 independent displays with i.MX6DL and i.MX6S
Video Interfaces	1 x LVDS Dual Channel or 2 x LVDS Single Channel 18 / 24 bit interface HDMI Interface 1.4
Video Resolution	LVDS up to 1920x1200 HDMI up to 1080p
Mass Storage	Up to 8 GB eMMC drive soldered on-board SD / MMC / SDIO interface 1 x External SATA Channel (only available with i.MX6D and i.MX6Q)
Networking	Gigabit Ethernet interface
USB	1 x USB OTG interface 4 x USB 2.0 Host interfaces
PCI-e	1 x PCI-e x1 lane (only PCI-e 1.1 and Gen2 are supported)
Audio	I2S / AC'97 Audio interface
Serial Ports	2 x Serial ports (TTL interface) CAN port interface

Other Interfaces	I2C Bus SM Bus Power Management Signals
Power Supply	+5V$_{DC}$ ± 5%
Operating System	Linux Yocto
Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	40 x 70 mm (1.57" x 2.76")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

µQ7-A75-J

µQseven® standard module with NXP i.MX6 Processor

Small, flexibile OTS module at proprietary costs

JUST! EMBEDDED

"Ready-to-use" and "ready-to-market" cost-effective product which exclusively supports SoC native features

HIGHLIGHTS

- Excellent price-performance ratio
- The best combination of low power consumption, size and price
- Complete BSP, easy migration between the entire i.MX6 product family

MAIN FIELDS OF APPLICATION

HMI

Internet of Things

PDA Electronics

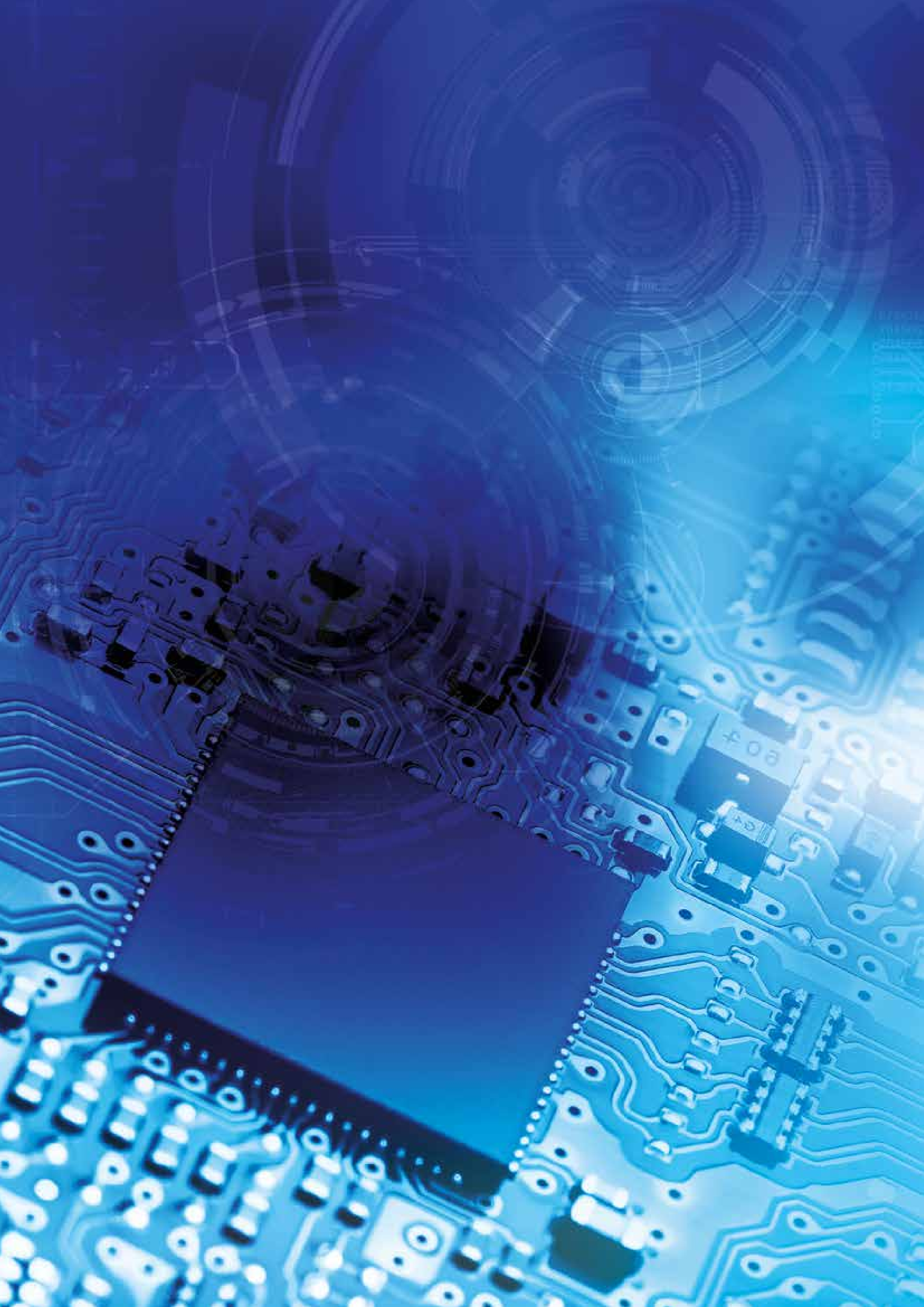
Wireless Technologies

FEATURES

Processor	NXP i.MX6 Family, based on ARM® CORTEX-A9 processors - **i.MX6S** Solo - Single core up to 1GHz - **i.MX6DL** Dual Lite - Dual core up to 1GHz per core
Max Cores	2
Memory	Up to 1GB DDR3L on-board (up to 512MB with i.MX6S Solo)
Graphics	Dedicated 2D Hardware accelerator Dedicated 3D Hardware accelerator, supports OpenGL® ES2.0 3D Supports 2 independent displays
Video Interfaces	1 x LVDS Dual Channel or 2 x LVDS Single Channel 18 / 24 bit interface HDMI Interface
Video Resolution	LVDS, resolution up to 1920x1200 HDMI, resolution up to 1080p
Mass Storage	On-board eMMC drive, up to 8 GB SD / MMC / SDIO interface Internal SPI Flash for booting
Networking	FastEthernet (10 / 100 Mbps) interface
USB	1 x USB OTG interface 1 x USB 2.0 Host interface
PCI-e	1 x PCI-e x1 lane (only PCI-e 1.1 and Gen2 are supported)
Audio	I2S / AC'97 Audio interface

Other Interfaces	On the card edge connector, many pins can be used as General Purpose I / Os or to implement some(*) of the following extra functionalities: - Additional SD interface - Up to 4 UARTs - CAN interface - Watchdog(s) - I2C interfaces - PWM outputs - SPI interface - Additional Audio interface (*) not all the combinations are allowed simultaneously Power Management Signals
Power Supply	+5V_{DC} ± 5% Optional Low Power RTC
Operating System	Linux Yocto
Operating Temperature*	0°C ÷ +60°C (Commercial version)
Dimensions	40 x 70 mm (1.57" x 2.76")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.



CQ7-A42

Carrier Board for Qseven® Rev. 2.0 Compliant modules on 3.5” Form factor

Feature rich for fast Time-to-market

HIGHLIGHTS

- 3.5” Form Factor Carrier Board for Qseven® Modules
- Multiport Video Interfaces
- Connectivity oriented
- Embedded industrial interfaces
- Industrial temperature range

CROSS
PLATFORM
Philosophy

FEATURES

Video Interfaces	LVDS Dual Channel 24-bit + backlight connectors **or** 2 x eDP connectors Multimode Display Port **or** HDMI Connector
Mass Storage	1 x SATA connector with HDD Power connector 1 x mSATA Slot microSD Slot on combo microSD + SIM connector
Networking	Up to 2 x Gigabit Ethernet connectors
USB	1 x USB 3.0 Host port on type-A socket 2 x USB 2.0 Host ports on double Type-A sockets 2 x USB 2.0 Host ports on internal pin header 1 x USB 2.0 OTG port on micro-AB socket (USB port shared with miniPCI-e slot)
PCI-e	miniPCI-e slot Full / Half Size, combined with SIM card slot
Audio	Audio interface on internal pin header
Serial Ports	4-wire RS-232 / RS-422 / RS-485 configurable serial port on DB9 male connector 2 x RS-232 Full-modem serial ports on internal header (need LPC interface from Qseven® module) CAN interface on PCB terminal block
Other Interfaces	SPI internal pin header LPC Bus internal pin header SM Bus / I2C GPIO expander, makes available 16 x GPIOs on internal pin header Front Panel Header 1 x 28 pin connector for additional features (I2C, ACPI signals, SM Bus, Watch Dog, Thermal Management) +12V Tachometric FAN connector Optional Debug USB port on miniB socket Optional MFG connector for JTAG programming of Qseven® module

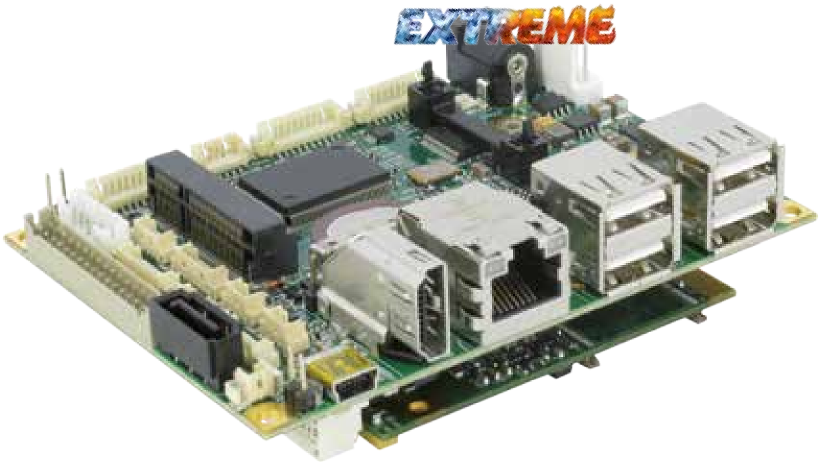
Power Supply	+12V_{DC} Mini-fit Standard ATX power connector Coin cell battery Holder for CMOS and RTC
Operating Temperature*	-40°C ÷ +85°C (Industrial temperature range)
Dimensions	146 x 102 mm (5.75” x 4.02”)

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperature is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

CQ7-901

Carrier Board for Qseven® Rev. 1.2 compliant modules on Pico-ITX Form Factor

Flexible, compact and cost-effective



HIGHLIGHTS

- Pico-ITX standard form factor Qseven® carrier board
- Supports ARM modules
- Also available in industrial temperature range

CROSS PLATFORM
Philosophy

FEATURES

Video Interfaces	LVDS Interface, 34 pin 2mm pin header Backlight Connector, 6 pin, 2mm Pin Header HDMI Connector
Mass Storage	1 x SATA connector µSD Card Slot
Networking	1 x Gigabit / FastEthernet connector 1 x optional additional FastEthernet port
USB	Up to 7 x USB 1.1 / 2.0 ports (1 x USB client)
PCI-e	1 x miniPCI Express slot
Audio	AC'97 and HD Audio Codec**, jumper selectable Line In, Mic In on internal pin headers Earphone pin header ** available only on Industrial version
Serial Ports	1 x RS-232 (RS-422 / RS-485 configurable) 1 x TTL-level serial port CAN Interface
Other Interfaces	8 x GPIO on 10-Pin Header Connector 4-Wire Touch Screen controller integrated SM Bus Pin Header I2C Bus, SPI interface SIM Card slot for miniPCI Express modems Internal Pin Header for Power, Lid, Sleep and Reset Button
Power Supply	On-board rechargeable Lithium Battery for CMOS Backup and RTC 12V Power jack Power On Status LED

Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	100 x 72 mm (3.94" x 2.83")

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperature is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Qseven® Cross Platform Development Kit 2.0

**Development kit for Qseven® philosophy, compatible with both x86 and ARM Qseven® modules.
Compliant to Qseven® specifications Rev. 2.0**

Everything you need for flexible development

CROSS PLATFORM
SECO

DEVELOPMENT KIT CONTENTS

The Development kit contains the following material:

- Cross Platform Carrier Board CQ7-A30
- LVDS optional Display
- One $12V_{DC}$ Notebook Power Adapter
- Add-on modules for LVDS / eDP and HDMI / DP
- Cable kit

Module not included. Must be purchased separately

CROSS PLATFORM Philosophy

SCHEMATICS PUBLICLY AVAILABLE

FEATURES OF CQ7-A30

Video Interfaces	HDMI / Display Port interface on PCI-e x16 slot LVDS / eDP interface on PCI-e x8 slot
Mass Storage	SATA Female 7p connector with dedicated Power connector, interface shared with mSATA Slot SATA Male 7+15p connector SD / MMC Card Slot SPI Flash Socket I2C EEPROM Socket
Networking	Gigabit Ethernet connector
USB	1 x USB 3.0 Host Type-A socket 1 x USB 3.0 OTG micro-AB socket 2 x USB 2.0 Host ports on internal pin header (alternative to USB 3.0 port #0) Up to 4 x USB 2.0 Host ports on quad Type-A socket
PCI-e	PCI-e x4 interface on dedicated PCI-e x16 slot shared with 3 x PCI-e x1 slots + miniPCI-e slot (selection via jumper)
Audio	Embedded HD Audio Codec, Realtek ALC888 2 x Triple HD Audio jacks 2 S / PDIF connectors (In & Out) Audio Expansion Slot
Serial Ports	CAN Bus (both TTL interface and with CAN transceiver) 3 x RS-232 only ports 2 x RS-232 / RS-422 / RS-485 configurable serial ports
Other Interfaces	Feature Connector, with I2C , SM Bus, Watchdog, Thermal and Power Management Signals LPC Bus Header SPI Pin Header SIM Card slot 4 x 7-segment LCD displays for POST codes PS / 2 Mouse / keyboard pin header 2 x tachometric FAN connectors Debug Port on mini-B USB connector Power, Reset, LID and Sleep Buttons

Power Supply	$+12V_{DC}$ Coin cell battery Holder for CMOS and RTC
Operating Temperature*	0° C ÷ 60° C
Dimensions	345 x 170 mm (13.58" x 6.69")

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperature is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Qseven® Cross Platform Starter Kit 2.0

Complete package including the basic components necessary to start the development with Qseven® rev. 2.0 compliant modules, with x86 or ARM architectures.

Quickly “start” prototyping for short Time-to-market

EXTREME
CROSS PLATFORM
SECO

STARTER KIT CONTENTS

- Carrier board for Qseven® Rev. 2.0 compliant modules CQ7-A42 (DP **or** HDMI version)
- 7” LVDS optional Display (800x480) UMSH-8596MD-20T
- LVDS display adapter + connection cable to CQ7-A42 carrier board
- HD Audio module
- I2S Audio module
- One $12V_{DC}$ Notebook Power Adapter
- Cable kit

Module not included. Must be purchased separately

CROSS PLATFORM Philosophy

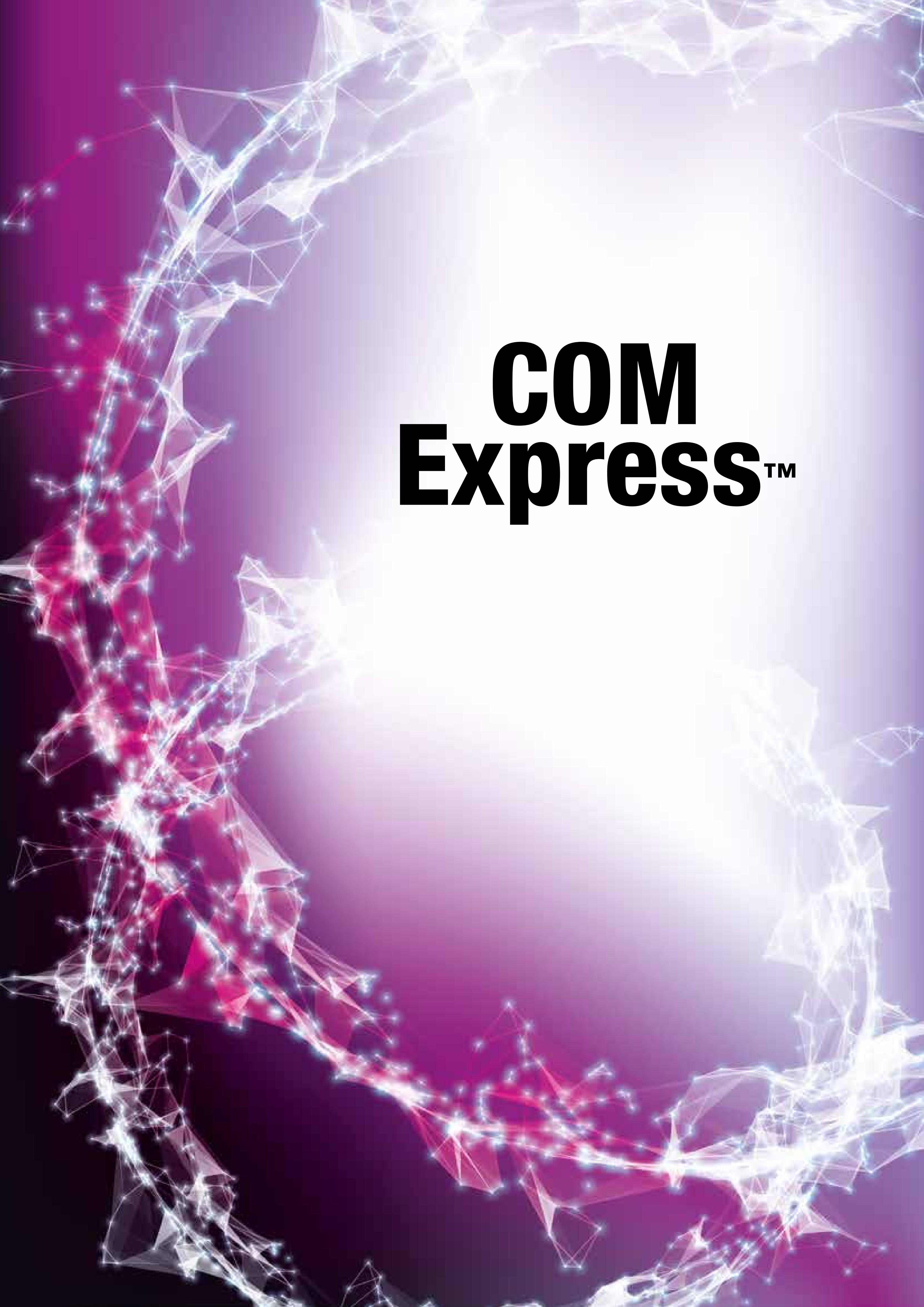
SCHEMATICS PUBLICLY AVAILABLE

FEATURES OF CQ7-A42

Video Interfaces	LVDS Dual Channel 24-bit + backlight connectors **or** 2 x eDP connectors Multimode Display Port **or** HDMI Connector
Mass Storage	1 x SATA connector with HDD Power connector 1 x mSATA Slot microSD Slot on combo microSD + SIM connector
Networking	Up to 2 x Gigabit Ethernet connectors
USB	1 x USB 3.0 Host port on type-A socket 2 x USB 2.0 Host ports on double Type-A sockets 2 x USB 2.0 Host ports on internal pin header 1 x USB 2.0 OTG port on micro-AB socket (USB port shared with miniPCI-e slot)
PCI-e	miniPCI-e slot Full / Half Size, combined with SIM card slot
Audio	Audio interface on internal pin header
Serial Ports	4-wires RS-232 / RS-422 / RS-485 configurable serial port on DB9 male connector 2 x RS-232 Full-modem serial ports on internal header (need LPC interface from Qseven® module) CAN interface on PCB terminal block
Other Interfaces	SPI internal pin header LPC Bus internal pin header SM Bus / I2C GPIO expander, makes available 16 x GPIOs on internal pin header Front Panel Header 1 x 28 pin connector for additional features (I2C, ACPI signals, SM Bus, Watch Dog, Thermal Management) +12V Tachometric FAN connector Optional Debug USB port on miniB socket Optional MFG connector for JTAG programming of Qseven® module

Power Supply	$+12V_{DC}$ Mini-fit Standard ATX power connector Coin cell battery Holder for CMOS and RTC
Operating Temperature*	-40°C ÷ +85°C (Industrial temperature range)
Dimensions	146 x 102 mm (5.75” x 4.02”)

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperature is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.



COM Express™

The Computer-On-Module approach

Each time a new product must be placed on the market, it becomes necessary to spend a lot of time in the development and successive validation phases. Therefore, any solution that allows reducing time, or recycling any of the work already done, is particularly appreciated in a world where the time-to-market requirement is getting shorter by the day. For this purpose, the modular approach represented by Computer-On-Module solutions, like Qseven® and COM Express™ modules, becomes an optimal solution, which can ensure compatibility, long term availability and scalability.

The availability of standard interfaces allows the customers to focus only on designing the carrier board, which can be perfectly tailored to the design requirements, and taking into consideration possible future evolutions.
The scalability offered by a modular approach allows, taking advantage of standard off-the-shelf modules, choosing the one that best fits the project requirements, and focusing all development resources on design-specific interfaces. In this way, possible problems due to obsolescence of the devices are reduced to a minimum: it will be possible at any time to replace the COM module with one of higher performance or even of a newer generation, while maintaining compatibility and therefore reducing validation time and cost.

By making all the interfaces available through only a few pins, COM solutions allow a significant reduction of complexity and effort required for the development of the customer's specific application interfaces: in most cases, only the routing of the interface buses to application-dedicated connectors is required, whether standard or not.
Furthermore the software development can be optimized with this kind of approach: the manufacturer of the module provides the necessary drivers for the module, and also the support (via BIOS or BSP) of the standard peripherals contained on the reference carrier board. The customer can therefore focus on the development of the application software, relying on the continuity of support for the hardware layer.

Last but not least, the use of off-the-shelf standard modules combined with custom carrier boards can help in reducing global costs, even for low-volume mass production. In these cases, due to the low volume of production, it would be not possible to obtain low prices on the most expensive components, like the processor, the memory chips and so on. By using standard modules, instead, it is possible to reduce the impact of these devices on the final cost of the assembled system.

COM Express™ Standard

Benefits:
FAST Development
Flexibility
Innovative and Upgradable
Easy Cabling

High – End Bandwidth For High – End Performance

COM (Computer on Module) Express™ is a standard form factor introduced in 2005 by PICMG, based on serial differential signaling technology.

This standard enables faster time-to-market and cost-effective customization alternatives.
SECO's latest modules are available in COM Express® Type 6 as well as Type 2, in two formats: the Basic, with dimensions of 125 x 95 mm, which is suited for highly power sensitive devices, and the Compact, with dimensions of 95x95 mm, which is a good trade-off between performance and small size.

The COM Express™ module is also designed to accommodate future generations of PCI Express and Serial ATA interfaces, doubling the data rates of the current generation.

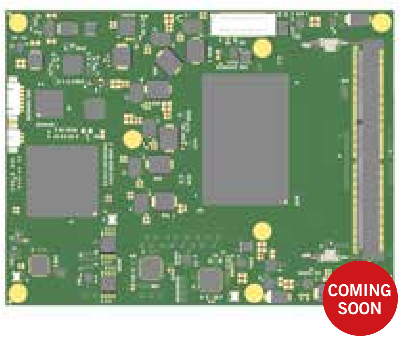
COM Express Interfaces

Interface	Type 2	Type 6
PCI Express	6	8
PEG Port	1 (muxed with SDVO)	1
SDVO	2 (muxed with SDVO)	1 (muxed with first DDI)
DDI (Digital Display Interface)	0	3
USB 2.0	8	4
USB 2.0&3.0	4	4
PCI Bus 32 Bit	1	-
IDE	1	-
Ethernet	1	1
SATA	4	4
LVDS	1	1
VGA	1	1
CAN	-	1
HDA (High Definition Audio)	1	1
GPIO (General Purpose Input/Output)	8	8
SDIO	0	1 (muxed with GPIO)
SM Bus	1	1
I²C Bus	1	1

COMe-B09-BT6

COM Express™ Basic Type 6 with Intel® 6th generation Core™ / Xeon® ("Skylake-H") CPUs

When high graphics and Hyper-threading matter


COMING SOON

HIGHLIGHTS

- Intel® 6th generation Core™ ("Skylake-H") Platform
- Up to 4 Cores + HD 530 or Iris 550
- DDR4 RAM TECHNOLOGY
- H.265 / HEVC HW Transcoder
- Up to 3 independent displays supported
- Resolution up to 4096x2304 @60Hz, 24bpp

COM Express PICMG intel IoT Solutions Alliance

Windows 7 Windows 8.1 Windows 10 Windows IoT Windows Embedded Standard 7 Windows Embedded Standard 8 Linux

CROSS PLATFORM Philosophy

MAIN FIELDS OF APPLICATION

- Biomedical/ Medical devices
- Gaming
- Digital Signage - Infotainment
- HMI

FEATURES

Processor	Intel® Core™ **i7-6820EQ**, Quad Core @ 2.8GHz (3.5GHz in Turbo Boost), 8MB Cache, 45W TDP Intel® Core™ **i7-6822EQ**, Quad Core @ 2GHz (2.8GHz in Turbo Boost), 8MB Cache, 25W TDP Intel® Core™ **i5-6440EQ**, Quad Core @ 2.7GHz (3.4GHz in Turbo Boost), 6MB Cache, 45W TDP Intel® Core™ **i5-6442EQ**, Quad Core @ 1.9GHz (2.7GHz in Turbo Boost), 6MB Cache, 25W TDP Intel® Core™ **i3-6100E**, Dual Core @ 2.7GHz, 3MB Cache, 35W TDP Intel® Core™ **i3-6102E**, Dual Core @ 1.9GHz, 3MB Cache, 25W TDP Intel® Xeon® **E3-1505M** V5, Quad Core @ 2.8GHz (3.7GHz in Turbo Boost), 8MB Cache, 45W TDP Intel® Xeon® **E3-1535M** V5, Quad Core @ 2.9GHz (3.8GHz in Turbo Boost), 8MB Cache, 45W TDP
Max Cores	4
Max Thread	8 (HT not available with Core™ i5 Processors)
Platform Controller Hub (PCH)	Intel® QM170, HM170 or CM236 PCH
Memory	Up to two DDR4 SO-DIMM Slots supporting DDR4-2133 Memory ECC DDR4 memory modules supported only with Xeon® and Core™ i3 processors combined with CM236 PCH
Graphics	Intel® HD Graphics 530 (Core™ processors), P530 (Xeon® processors) Up to 3 independent displays supported DirectX® 12.1, OpenGL 4.4, and OpenCL 2.0 support HW accelerated video decode MPEG2, VC1 / WMV9, AVC / H.264, VP8, JPEG / MJPEG, HEVC / H.265, VP9 HW accelerated video encode MPEG2, AVC / H.264, VP8, JPEG / MJPEG, HEVC / H.265, VP9
Video Interfaces	Up to 3 x Digital Display Interfaces (DDIs), supporting DP 1.2, DVI and HDMI 1.4 eDP **or** Single / Dual-Channel 18- / 24- bit LVDS interface **or** LVDS + VGA interface PCI-express Graphics (PEG) Gen3 x16

Video Resolution	eDP, DP: HDMI: LVDS, VGA:	up to 4096x2304 @60Hz, 24bpp up to 4096x2160 @60Hz, 24bpp up to 1920 x 1200 @60Hz
Mass Storage	4 x SATA Gen3 Channels	
Networking	Gigabit Ethernet interface Intel® I219-LM GbE Controller	
USB	4 x USB 3.0 Host ports 8 x USB 2.0 Host ports	
PCI-e	8 x PCI-e x1 Gen3 lanes	
Audio	HD Audio Interface	
Serial Ports	2 x UARTs	
Other Interfaces	2 x SPI, I2C, SM Bus, LPC Bus, 2 x Express Card, FAN management Optional TPM 1.2 LID# / SLEEP# / PWRBTN#, Watchdog 4x GPI, 4 x GPO	
Power Supply	$+12V_{DC} \pm 10\%$ and $+5V_{SB}$ (optional)	
Operating System	Microsoft® Windows 7 Microsoft® Windows 8.1 Microsoft® Windows 10 Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 Microsoft® Windows Embedded Standard 8 Linux	
Operating Temperature*	0°C ÷ +60°C (Commercial version)	
Dimensions	125 x 95 mm (Com Express™ Basic Form factor, Type 6 pinout)	

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

COMe-A98-CT6

COM Express™ Compact Type 6 with AMD Embedded 3rd generation R-Series (“Merlin Falcon”) SOC

When scalable graphics performance makes the difference

EXTREME
COMING SOON

HIGHLIGHTS

- Up to 4 Excavator x86 CPU cores with the latest Radeon graphics and I / O Controller on a single Chip
- Each Processor can scale the TDP down to 15W

CROSS PLATFORM Philosophy

MAIN FIELDS OF APPLICATION

Medical

Gaming

Digital Signage - Infotainment

FEATURES

Processor	AMD **RX-421BD**, Quad Core @ 2.1 GHz (3.4 GHz Max), TDP 35W AMD **RX-418GD**, Quad Core @ 1.8 GHz (3.2 GHz Max), TDP 35W AMD **RX-216GD**, Dual Core @ 1.6GHz (3.0 GHz Max), TDP 15W
Max Cores	4
Memory	Up to two DDR4 SO-DIMM Slots supporting DDR4-2400 ECC Memory
Graphics	AMD Radeon 3rd -Generation Graphics Core Next (GCN) Up to 3 independent displays supported DirectX® 12 supported UVD 6 (4K H.265 and H.264 decode) and VCE 3.1 (4K H.264 encode) supported
Video Interfaces	Up to 3 x Digital Display Interfaces (DDIs), supporting DP 1.2, DVI and HDMI 1.4 / 2.0 Optional VGA interface (excludes one DDI Port) Optional eDP or Single / Dual-Channel 18- / 24- bit LVDS interface (excludes one DDI Port) PCI-express Graphics (PEG) x 8
Video Resolution	DDIs: up to 3840 x 2160 LVDS, VGA: up to 1920 x 1200
Mass Storage	2 x SATA Gen3 Channels SD interface shared with GPI / Os
Networking	Gigabit Ethernet interface Intel® I210 GbE Controller
USB	4 x USB 3.0 Host ports 8 x USB 2.0 Host ports
PCI-e	3 x PCI-e x1 Gen3 lanes
Audio	HD Audio Interface
Serial Ports	2 x UARTs

Other Interfaces	SPI, I2C Bus, SM Bus, LPC Bus, 2 x Express Card, FAN management LID# / SLEEP# / PWRBTN#, Watchdog 4x GPI, 4 x GPO (multiplexed with SD interface)
Power Supply	$+12V_{DC} \pm 10\%$ and $+5V_{SB}$ (optional)
Operating System	Microsoft® Windows 7 Microsoft® Windows 8.1 Microsoft® Windows 10 Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 Microsoft® Windows Embedded Standard 8 Linux
Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	95 x 95 mm (Com Express™ Compact Form factor, Type 6 pinout)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

COMe-A41-CT6

COM Express™ Compact Type 6 with Intel® Atom™ E3800 and Celeron® families ("Bay Trail")

Versatile and rugged

HIGHLIGHTS

- Dual independent display support, with broad connectivity options (HDMI, DVI, DP, DP++, LVDS, CRT)
- Also available in Industrial temperature range
- Optional eMMC drive soldered on-board

Moon Island platform -
Intel IoT gateway solution

MAIN FIELDS OF APPLICATION

Industrial Automation and Control

Biomedical/ Medical devices

Gaming

Digital Signage - Infotainment

Automotive

Avionics

Transportation

FEATURES

Processor	Intel® Atom™ **E3845**, Quad Core @1.91GHz, 2MB Cache, 10W TDP Intel® Atom™ **E3827**, Dual Core @1.75GHz, 1MB Cache, 8W TDP Intel® Atom™ **E3826**, Dual Core @1.46GHz, 1MB Cache, 7W TDP Intel® Atom™ **E3825**, Dual Core @1.33GHz, 1MB Cache, 6W TDP Intel® Atom™ **E3815**, Single Core @1.46GHz, 512KB Cache, 5W TDP Intel® Celeron® **J1900**, Quad Core @2.0GHz, 2MB Cache, 10W TDP Intel® Celeron® **N2930**, Quad Core @1.83GHz, 2MB Cache, 7.5W TDP Intel® Celeron® **N2807**, Dual Core @1.58GHz, 1MB Cache, 4.3W TDP
Max Cores	4
Memory	DDRL non-ECC SO-DIMM slots, 4GB modules supported per each slot E3845, E3827, J1900, N2930: up to 8GB Dual-Channel DDR3L 1333MHz E3826: up to 8GB Dual-Channel DDR3L 1066MHz N2807: up to 4GB Single-Channel DDR3L 1333MHz E3825, E3815: up to 4GB Single-Channel DDR3L 1066MHz
Graphics	Integrated Intel® HD Graphics 4000 series controller Dual independent display support HW decoding of H.264, MPEG2, MVC, VC1, VP8, MJPEG formats HW encoding of H.264, MPEG2 and MVC formats
Video Interfaces	1 x Digital Display Interface (DDI) able to drive HDMI / DVI / DP++ interface Additional DDI, can be switched to manage embedded Display Port **or** 18 / 24 bit single / dual channel LVDS interface CRT interface
Video Resolution	CRT Interface: Up to 2560x1600@60Hz HDMI: Up to 1920x1080p@60Hz Display Port, eDP: Up to 2560x1600@60Hz Optional LVDS interface: Up to 1920x1200@60Hz
Mass Storage	Optional eMMC drive soldered on-board 2 x external SATA channels SD Card interface (multiplexed with GPIO signals)
Networking	Optional Gigabit Ethernet interface (uses one PCI-e lane)

USB	7 x USB 2.0 Host ports 4 x USB 3.0 Host ports
Audio	HD Audio interface
PCI-e	Up to 4 x PCI-e x1 Gen2 lanes
Serial Ports	2 x Serial ports (TX / RX only, TTL interface)
Other Interfaces	2 x Express Card interfaces I2C Bus LPC Bus SM Bus 4 x GPI, 4 x GPO Thermal / FAN management Watch Dog timer Power Management Signals
Power Supply	+12V_{DC} ± 10% and + 5V_{SB} (optional)
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Microsoft® Windows Embedded Compact 7 Linux (32 / 64 bit) Yocto
Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	95 x 95 mm (Com Express™ Compact Form factor, Type 6 pinout, 3.74" x 3.74")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

COMe-A81-CT6

COM Express™ Compact Type 6 based on NVIDIA® Tegra® K1 Mobile Processor SoC

Supreme Visual computing with ARM efficiency

HIGHLIGHTS

- Integrates 192 CUDA® cores and a Low-power NVIDIA® Kepler™ GPU for Extreme performance and powerful computing with extraordinary power efficiency
- Supports OpenGL® ES 3.0, OpenGL® 4.4, DirectX® 11.1, CUDA® 7; up to 2160p30 HW decoding; up to 2160p24 HW encoding
- COM Express™ Cross Platform compatible with all COM Express™ type 6 standard carrier boards

CROSS PLATFORM Philosophy

MAIN FIELDS OF APPLICATION

- Automotive
- In-Vehicle Infotainment Systems
- Visual Computing
- Surveillance
- Defense
- Medical
- Gaming
- Digital Signage - Infotainment
- Measuring Instruments

FEATURES

Processor	NVIDIA® Tegra® K1 Mobile Processor Quad-core, 4-Plus-1™ ARM® Cortex –A15 MPCore R3 processor
Max Cores	4
Memory	Dual Channel Soldered Down DDR3L-1833 memory, up to 4GB
Graphics	Low-power NVIDIA® Kepler™ -based GeForce® graphics processor with 192 CUDA® cores Supports OpenGL® ES 3.0, OpenGL® 4.4, DirectX® 11.1, Tessellation CUDA® 7 Up to 2160p30 HW decoding; up to 2160p24 HW encoding
Video Interfaces	eDP interface **or** native Single Channel 18 / 24 bit LVDS interface **or** Single / Dual Channel 18 / 24bit LVDS interface HDMI interface 2 x MIPI CSI Camera interfaces
Video Resolution	HDMI: up to 4096 x 2160 (4K) eDP: up to 3840 x 2160 LVDS: up to 1920 x 1200
Mass Storage	1 x external SATA Gen2 Channel Optional eMMC drive soldered on-board, up to 32GB
Networking	Gigabit Ethernet interface Realtek RTL8111G Controller (MAC + PHY)
USB	8 x USB 2.0 Host ports 4 x USB 3.0 Host ports
PCI-e	Up to four PCI-express x1 interfaces (factory options)
Audio	HD Audio interface
Serial Ports	2 x UARTS, TX / RX signals only, TTL interface

Other Interfaces	I2C Bus LPC Bus SM Bus 4 x GPI, 4 x GPO SPI Interface Watch Dog Timer Real Time Clock (optional, additional Low Power RTC) Power Management Signals Thermal / Fan Management On-board FAN connector
Power Supply	$+12V_{DC}$ and $+5V_{SB}$ (optional)
Operating System	Linux for Tegra (L4T) provides flashing utilities, bootloader, Linux kernel, Tegra hardware acceleration libraries for graphics, multimedia and compute (EGL, OpenGL-ES, GLX, OpenGL), and a reference File System for evaluating Linux on the Tegra platform
Operating Temperature*	0°C ÷ +60°C (Commercial version)
Dimensions	95 x 95 mm (COM Express Compact, 3.74" x 3.74")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

COMe-953-BT6

COM Express™ Basic Type 6 Module with Intel® Haswell family CPUs

High performance for any design in a scalable form factor

HIGHLIGHTS

- High performance computing and graphics
- Supports enhanced high-end media and graphics capabilities and performance

COM Express PICMG intel IoT Solutions Alliance

CROSS PLATFORM Philosophy

Windows 7 Windows 8.1 Windows 10 Windows IoT Windows Embedded Standard 7 Windows Embedded Standard 8 Windows Embedded Compact 7 Linux

MAIN FIELDS OF APPLICATION

Biomedical/ Medical devices

Gaming

Digital Signage - Infotainment

HMI

FEATURES

Processor	Intel® Core™ **i3-4100E**, Dual Core with HT @ 2.4GHz, 3MB Cache, 37W TDP Intel® Core™ **i3-4102E**, Dual Core with HT @ 1.6GHz, 3MB Cache, 25W TDP Intel® Core™ **i5-4400E** Dual Core with HT @ 2.7GHz, 3MB Cache, 37W TDP Intel® Core™ **i5-4402E** Dual Core with HT @ 1.6GHz, 3MB Cache, 25W TDP Intel® Core™ **i7-4700EQ** Quad Core with HT @ 2.4GHz, 6MB Cache, 47W TDP Intel® Celeron® **2002E** Dual Core @1.5GHz, 2MB Cache, 25W TDP Intel® Celeron® **2000E** Dual Core @2.2GHz, 2MB Cache, 37W TDP
Max Cores	4
Chipset	Intel® QM87 Chipset
Memory	Up to 16GB 1.35V DDR3L-1600 on two SO-DIMM slots, supporting Dual-Channel
Graphics	Integrated Intel® HD Graphics Up to 3 independent displays supported DirectX® 11, OpenGL4.0 supported
Video Interfaces	3 x HDMI / DVI / Multimode Display Port interfaces embedded Display Port **or** 18 / 24 bit single / dual channel LVDS interface CRT interface PCI Express Graphics (PEG) x 16 interface
Video Resolution	CRT Interface: up to 1920 x 1200 @ 60Hz HDMI: up to 4096x2304 @ 24Hz / 2560x1600 @ 60Hz DVI: up to 1920x1200 @ 60Hz Display Port: up to 3840 x 2160 @ 60Hz LVDS, eDP: up to 1920 x 1200 @ 60Hz
Mass Storage	4 x external SATA channels
Networking	Gigabit Ethernet interface Supports remote management (Intel® AMT Technology)

USB	8 x USB 2.0 Host ports 4 x USB 3.0 Host ports
PCI-e	7 x PCI-e x1 lanes (configurable as 1 PCI-e x4 + 3 PCI-e x1)
Audio	HD Audio interface
Other Interfaces	2 x Express Card interfaces I2C Bus LPC Bus SM Bus 4 x GPI, 4 x GPO Thermal / FAN management Watch Dog timer Optional TPM on-board Power Management Signals
Power Supply	+12V$_{DC}$ ± 10% and + 5V$_{SB}$ (optional)
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Microsoft® Windows Embedded Compact 7 Linux
Operating Temperature*	0°C ÷ +60°C (Commercial version)
Dimensions	125 x 95 mm (4.92” x 3.74”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

COMe-948-BT6

COM Express™ Basic Type 6 Module based on AMD Embedded R-Series Platform

Powerful integrated graphics for multi-display designs

HIGHLIGHTS

- AMD R-series APU (CPU+GPU) architecture
- Up to 4 independent displays, up to 2560x1600 resolution
- Designed for digital signage, gaming and multimedia applications

CROSS PLATFORM Philosophy

MAIN FIELDS OF APPLICATION

- Biomedical/ Medical devices
- Gaming
- Digital Signage - Infotainment

FEATURES

Processor	AMD **R-464L**, Quad Core @ 3.2 GHz, TDP 35W AMD **R-460L**, Quad Core @ 2.8 GHz, TDP 25W AMD **R-452L**, Quad Core @ 2.4 GHz, TDP 19W AMD **R-260H**, Dual Core @ 2.6 GHz, TDP 17W AMD **R-252F,** Dual Core @ 2.4 GHz, TDP 17W
Max Cores	4
Chipset	AMD A70M Controller Hub
Memory	Up to 8GB of 1600MHz DDR3 on two SO-DIMM slots @1.5V, supporting Dual-Channel
Graphics	AMD Radeon HD7000G Series: HD7660G - AMD R-464L HD7620G - AMD R-460L / HD7600G - AMD R-452L HD7500G - AMD R-260H / HD7400G - AMD R-252F Up to 4 independent displays supported DirectX® 11, OpenGL4.2, OpenCL™ 1.1 supported
Video Interfaces	3 x Digital Display interfaces 18 / 24 bit single / dual channel LVDS interface CRT interface PCI Express Graphics (PEG) x 8 interface
Video Resolution	Digital Display interfaces: up to 2560 x 1600 CRT: up to 1920 x 1600 LVDS: up to 1920 x 1200
Mass Storage	4 x external SATA channels
Networking	Gigabit Ethernet interface
USB	8 x USB 2.0 Host ports 4 x USB 3.0 Host ports
PCI-e	7 x PCI-e x1 lanes (configurable as 1 PCI-e x4 + 3 PCI-e x1)
Audio	HD Audio interface
Serial Ports	2 x optional Serial ports (TX / RX only, TTL interface)

Other Interfaces	2 x Express Card interfaces I2C Bus LPC Bus SM Bus 4 x GPI, 4 x GPO Thermal / FAN management SPI Interface Watch Dog timer Real Time Clock Optional Trusted Platform Module (TPM) Power Management Signals
Power Supply	$+12V_{DC}$ ± 10% and + $5V_{SB}$ (optional)
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Linux
Operating Temperature*	0°C ÷ +60°C
Dimensions	125 x 95 mm (4.92” x 3.74”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Milano, Piazza del Duomo

CCOMe-965

Carrier Board for COM-Express™ Type 6 modules on miniITX form factor

Platform independent carrier board for quick prototyping

HIGHLIGHTS

- COM Express™ Type 6 carrier board
- mini-ITX form factor
- Broad choice of Video Interfaces

CROSS PLATFORM Philosophy

FEATURES

Video Interfaces	1 x LVDS (18bit / 24bit, single / dual channel) 34 pin connector 1 x eDP connector 1 x backlight connector 2 x combo DP / HDMI Connectors 1x multimode Display Port Connector 1 x VGA connector 8-pin socket for external DID EEPROM PCI Express Graphics x16 slot
Mass Storage	2 x SATA connectors 1 x mSATA Slot
Networking	2 x Gigabit Ethernet ports
USB	4 x USB 3.0 Host ports on type-A sockets 2 x USB 2.0 Host ports on internal pin header
PCI-e	1 x PCI-e x4 slot, Gen2 compatible 2 x miniPCI-e slot Full / Half Size, (one combined with SIM card slot), Gen2 compatible
Audio	Internal HD Audio Codec Triple Audio jack S / P-DIF Out 3 pin header for digital Audio Internal pin header for audio jacks' remoting
Other Interfaces	I2C EEPROM Socket LPC Bus internal pin header Front Panel Header 1 x 28 pin connector for additional features (I2C, ACPI signals, SM Bus, Watch Dog, Thermal Management) Internal pin header for GPIO / SDIO + 2 x RS-232 Serial ports (Tx / Rx signals) SIM Card slot Tachometric FAN connector, selectable +12V or +5V

Power Supply	ATX Standard power connector 24 poles (AT mode configurable) +12V auxiliary power connector Coin cell battery Holder for CMOS and RTC
Operating Temperature*	0°C ÷ +60°C
Dimensions	170 x 170 mm (6.69" x 6.69")

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperature is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

COM Express™ Type 6 Cross Platform Development Kit

Development kit compatible with both x86 and ARM COM Express™ Type 6 modules

Platform independent kit for fast Time-to-market

DEVELOPMENT KIT CONTENTS

The Development kit contains the following material:

- CCOMe-965 carrier board
- HDMI Cable High-Speed 19p to 19p 1m
- DP Cable 1m

Module not included. Must be purchased separately

SCHEMATICS PUBLICLY AVAILABLE

FEATURES OF CCOMe-965

Video Interfaces	1 x LVDS (18bit / 24bit, single / dual channel) 34 pin connector 1 x eDP connector 1 x backlight connector 2 x combo DP / HDMI Connectors 1x multimode Display Port Connector 1 x VGA connector 8-pin socket for external DID EEPROM PCI Express Graphics x16 slot
Mass Storage	2 x SATA connectors 1 x mSATA Slot
Networking	2 x Gigabit Ethernet ports
USB	4 x USB 3.0 Host ports on type-A sockets 2 x USB 2.0 Host ports on internal pin header
PCI-e	1 x PCI-e x4 slot, Gen2 compatible 2 x miniPCI-e slot Full / Half Size, (one combined with SIM card slot), Gen2 compatible
Audio	Internal HD Audio Codec Triple Audio jack S / P-DIF Out 3 pin header for digital Audio Internal pin header for audio jacks' remoting
Other Interfaces	I2C EEPROM Socket LPC Bus internal pin header Front Panel Header 1 x 28 pin connector for additional features (I2C, ACPI signals, SM Bus, Watch Dog, Thermal Management) Internal pin header for GPIO / SDIO + 2 x RS-232 Serial ports (Tx / Rx signals) SIM Card slot Tachometric FAN connector, selectable +12V or +5V

Power Supply	ATX Standard power connector 24 poles (AT mode configurable) +12V auxiliary power connector Coin cell battery Holder for CMOS and RTC
Operating Temperature*	0°C ÷ +60°C
Dimensions	170 x 170 mm (6.69" x 6.69")

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperature is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

COMe-800-BT2

COM Express™ Basic Type 2 with Intel® Core™ i3 / i5 / i7 / Celeron® Processor

Ideal for type 2 legacy design

HIGHLIGHTS

- COM-Express™ TYPE II (Basic)
- Intel Core i3, i5, i7 Integrated CPU
- Intel Turbo Boost Technology
- Multiple Display Interfaces Supported

MAIN FIELDS OF APPLICATION

- Biomedical/ Medical devices
- Gaming
- Digital Signage - Infotainment
- Measuring Instruments

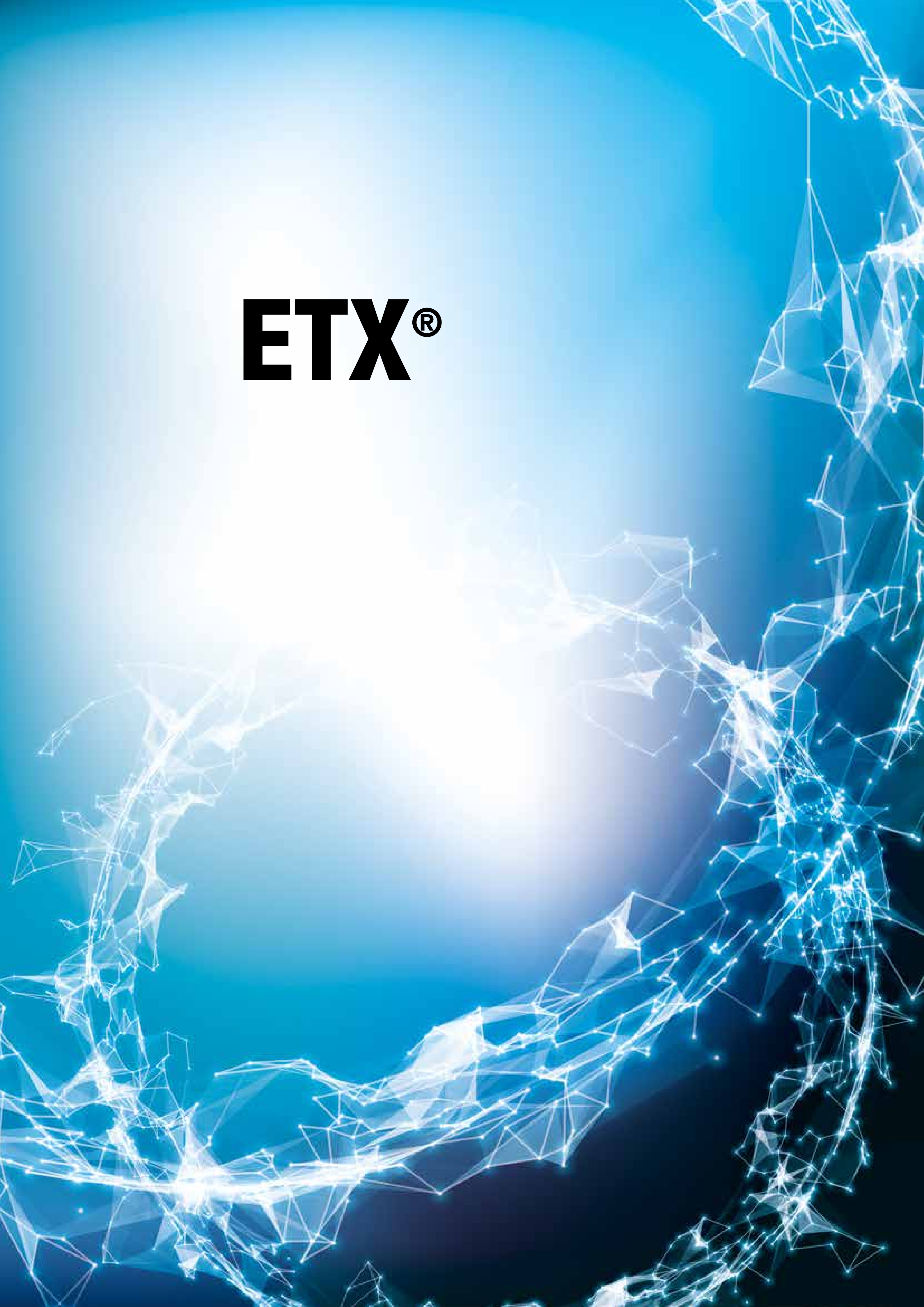
FEATURES

Processor	Intel® Core™ **i3-330E** @ 2.13GHz, 3MB Cache, 35W TDP Intel® Core™ **i5-520E / 520M**@2.4GHz, 3MB Cache, 35W TDP Intel® Core™ **i7-660UE** @ 1.33GHz, 4MB Cache, 18W TDP Intel® Core™ **i7-620LE** @ 2GHz, 4MB Cache, 25W TDP Intel® Core™ **i7-610E** @ 2.53GHz, 4MB Cache, 35W TDP Intel® Celeron® **U3405**@ 1.06GHz, 2MB Cache, 18W TDP Intel® Celeron® **P4505**@ 1.86GHz, 2MB Cache, 35W TDP
Max Cores	2
Max Thread	4
Chipset	Intel® HM55 Express Chipset
Memory	Two DDR3 SO-DIMM Slots supporting up to 8 GB DDR3-1066 memory in Dual Channel Mode
Graphics	Integrated Intel® HD graphics controller Up to 2 independent displays supported MPEG2, WMV9 / VC1, AVC Hardware Acceleration
Video Interfaces	Single / Dual Channel 18 / 24 bit LVDS interface VGA interface PCI-express Graphics (PEG) x 16
Video Resolution	Up to 2048 x 1536
Mass Storage	1 x PATA channel 4 x SATA Gen2 Channels
Networking	Gigabit Ethernet interface Intel® WG82577LM GbE Controller
USB	8 x USB 2.0 Host ports
PCI-e	4 x PCI-e x1 Gen2 lanes
Audio	HD Audio interface

Other Interfaces	PCI Bus LPC BUs 4x GPI, 4 x GPO Watch Dog Timer FAN management Power management signals TPM
Power Supply	$+12V_{DC}$ ± 10% and $+5V_{SB}$ (optional)
Operating System	Microsoft® Windows XP (32 / 64 bit) Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 2009 (32 / 64 bit) Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Linux
Operating Temperature*	0°C ÷ +60 °C (Commercial version)
Dimensions	125 x 95 mm (COM Express™ Basic Form factor, Type 2 pinout)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

ETX®



The Computer-On-Module approach

Each time a new product must be placed on the market, it becomes necessary to spend a lot of time in the development and successive validation phases. Therefore, any solution that allows reducing time, or recycling any of the work already done, is particularly appreciated in a world where the time-to-market requirement is getting shorter by the day. For this purpose, the modular approach represented by Computer-On-Module solutions, like Qseven® and COM Express™ modules, becomes an optimal solution, which can ensure compatibility, long term availability and scalability.

The availability of standard interfaces allows the customers to focus only on designing the carrier board, which can be perfectly tailored to the design requirements, and taking into consideration possible future evolutions.
The scalability offered by a modular approach allows, taking advantage of standard off-the-shelf modules, choosing the one that best fits the project requirements, and focusing all development resources on design-specific interfaces. In this way, possible problems due to obsolescence of the devices are reduced to a minimum: it will be possible at any time to replace the COM module with one of higher performance or even of a newer generation, while maintaining compatibility and therefore reducing validation time and cost.

By making all the interfaces available through only a few pins, COM solutions allow a significant reduction of complexity and effort required for the development of the customer's specific application interfaces: in most cases, only the routing of the interface buses to application-dedicated connectors is required, whether standard or not.
Furthermore the software development can be optimized with this kind of approach: the manufacturer of the module provides the necessary drivers for the module, and also the support (via BIOS or BSP) of the standard peripherals contained on the reference carrier board. The customer can therefore focus on the development of the application software, relying on the continuity of support for the hardware layer.

Last but not least, the use of off-the-shelf standard modules combined with custom carrier boards can help in reducing global costs, even for low-volume mass production. In these cases, due to the low volume of production, it would be not possible to obtain low prices on the most expensive components, like the processor, the memory chips and so on. By using standard modules, instead, it is possible to reduce the impact of these devices on the final cost of the assembled system.

ETX® Standard

Benefits:

Quick Time-to-Market
Flexibility
Innovative and Upgradable
Easy Cabling
For Legacy Technology

Winning Formula

The ETX® (Embedded Technology eXtended) architecture is based upon two elements: the ETX® CPU Module and the ETX® Baseboard.

The ETX® CPU modules have a compact size (95x114mm) and four standard high density connectors through which the ISA bus, PCI bus and the most common I/O signals in a PC are conveyed to the ETX® Baseboard. The connectors are placed on the baseboard which is generally designed on the customer's requirements. For ETX® baseboards, SECO provides off-the-shelf solutions but also offers its extensive know-how for custom baseboard design.

This solution allows the customer to keep the same mechanical casing or chassis that contains the embedded CPU system however diversifying or updating the performance of the product by simply exchanging the ETX CPU module. Another advantage is the possibility of creating a wider range of final products with different performance and /or features by simply using different CPU modules, avoiding additional design costs and risks.

ETX-A61

ETX® Module with the Intel® Atom™ E3800 and Celeron® families (“Bay Trail”) SoC

Update your legacy design

HIGHLIGHTS

- Intel® Atom™ E3800 and Celeron® families (“Bay Trail”)
- Rugged design (DDR3L memory soldered on-board, exclusively ceramic capacitors, high quality AEC-Q200 grade inductors)
- State-of-the-art replacement solution for legacy projects in ETX form factor with dual channel memory
- On-board eMMC for storage and operating system booting support

ETX® 3.0 Long Term Support

IoT Solutions Alliance

Moon Island platform - Intel IoT gateway solution

MAIN FIELDS OF APPLICATION

Robotics

Automotive

Military

Surveillance

Biomedical/ Medical devices

Industrial Automation and Control

Automation

HMI

Avionics

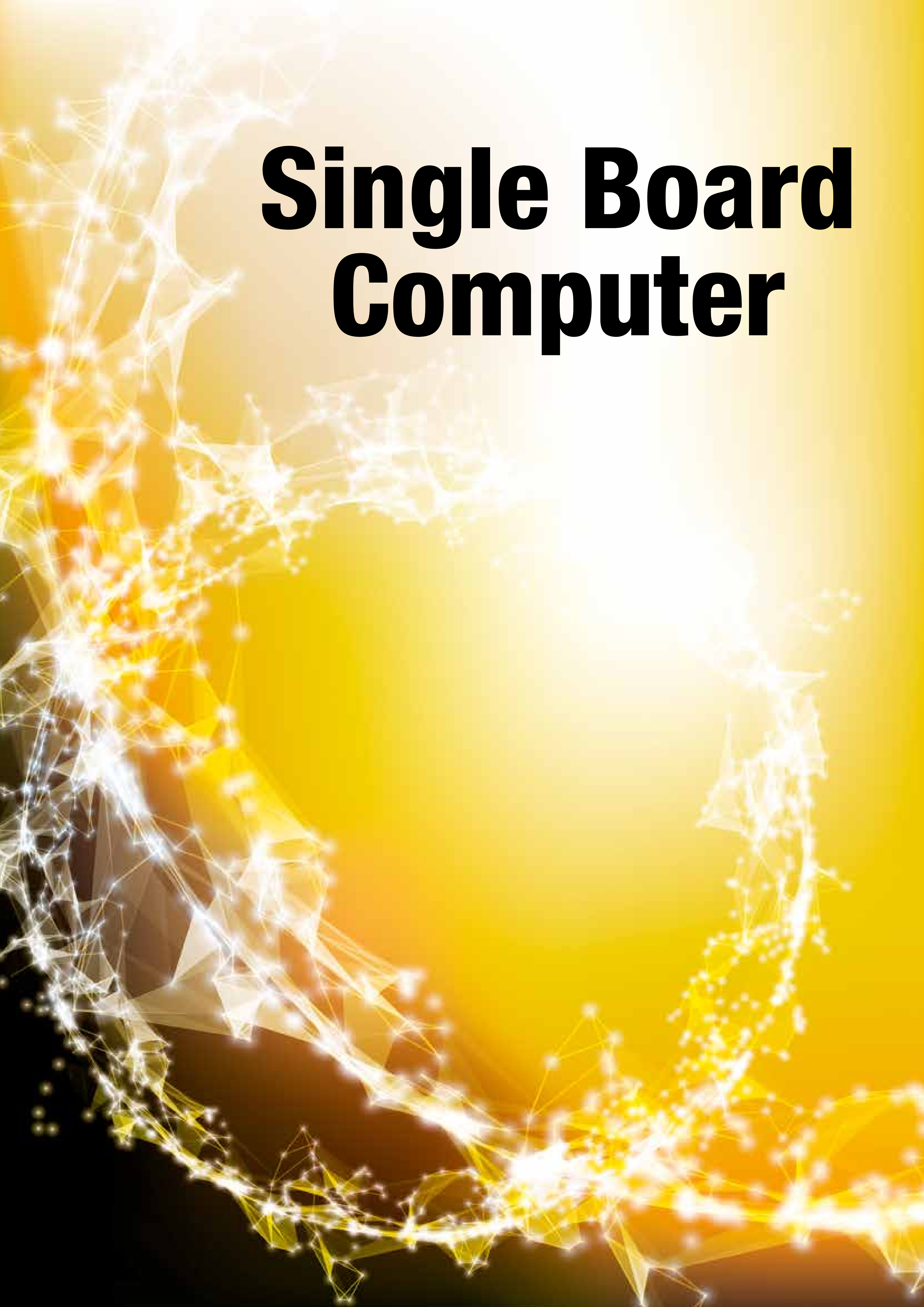
FEATURES

Processor	Intel® Atom™ **E3845**, Quad Core @1.91GHz, 2MB Cache, 10W TDP Intel® Atom™ **E3827**, Dual Core @1.75GHz, 1MB Cache, 8W TDP Intel® Atom™ **E3826**, Dual Core @1.46GHz, 1MB Cache, 7W TDP Intel® Atom™ **E3825**, Dual Core @1.33GHz, 1MB Cache, 6W TDP Intel® Atom™ **E3815**, Single Core @1.46GHz, 512KB Cache, 5W TDP Intel® Celeron® **J1900**, Quad Core @2.0GHz, 2MB Cache, 10W TDP Intel® Celeron® **N2930**, Quad Core @1.83GHz, 2MB Cache, 7.5W TDP Intel® Celeron® **N2807**, Dual Core @1.58GHz, 1MB Cache, 4.3W TDP
Max Cores	4
Max Thread	4
Memory	DDR3L memory soldered on-board E3845, E3827, J1900, N2930: up to 8GB Dual-Channel DDR3L 1333MHz E3826: up to 8GB Dual-Channel DDR3L 1066MHz N2807: up to 4GB Single-Channel DDR3L 1333MHz E3825, E3815: up to 4GB Single-Channel DDR3L 1066MHz
Graphics	Integrated Intel® HD Graphics 4000 series controller Dual independent display support HW decoding of H.264, MPEG2, MVC, VC1, VP8, MJPEG formats HW encoding of H.264, MPEG2 and MVC formats
Video Interfaces	VGA standard analog video interface 18 / 24 bit single / dual channel LVDS interface (VESA and JEIDA color mapping compatible)
Video Resolution	CRT Interface: Up to 2560 x 1600 @ 60Hz LVDS interface: Up to 1920 x 1200 @ 60Hz
Mass Storage	Optional eMMC drive soldered on-board 2 x external SATA **or** 2 x PATA **or** 1 x PATA + 1 x SATA channels (factory options) µSD Card Slot
Networking	Gigabit Ethernet controller, makes available a 10 / 100Mbps Ethernet interface
USB	4 x USB 2.0 Host ports

Audio	HD Audio codec, Realtek ALC262
Serial Ports	2 x Serial ports (TX / RX / RTS / CTS signals, TTL interface)
Other Interfaces	PCI Bus rel. 2.3 compliant ISA Bus LPT interface shared with Floppy Drive interface PS / 2 mouse and keyboard interface I2C Bus SM Bus Watch Dog timer Power Management Signals
Power Supply	$+5V_{DC} \pm 5\%$ and $+ 5V_{SB}$ (optional)
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Microsoft® Windows Embedded Compact 7 Linux (32 / 64 bit) Yocto
Operating Temperature*	0°C ÷ +60°C (Commercial version) Optionally available in -40°C ÷ +85°C temperature range
Dimensions	114 x 95 mm (4.49” x 3.74”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Single Board Computer



Benefits:

Compact Dimensions
Rugged Solution
Cost Effective

Clever Turn-key Solutions

SECO's Embedded Single Board Computer product line includes a wide range of standard architectures such as pITX. Typical fields of application are gaming (slot or video poker machines), digital signage (kiosks or info-point devices) and industrial (processes control machines).

SECO SBCs provide all the required I/O's for typical industrial applications such as onboard digital and analog I/O, onboard bootable flash.

SECO's Single board computers are compact with a high level of integration. Together with their low power consumption they become the obvious choice for a wide range of applications.

Plug-in cards such as DIMMs or storage units, cables and display interfaces along with pre-loaded operating systems complete the offer of SECO's turn-key solutions with long term availability.

SBC-A44-pITX

Pico-ITX SBC with Intel® Atom™ E3800 family SOCs and ECC DDR3L memory

Limitless Embedded applications

HIGHLIGHTS

- Born for the industrial market with native -40° to +85 °C temperature range
- ECC memory support
- Broad range of video and native serial connectivity options
- Designed for harsh environments
- Ideal for critical applications
- For designs that require data coherence and security
- Also for headless applications and IIoT smart gateways

IoT Solutions Alliance

Moon Island platform -
Intel IoT gateway solution

MAIN FIELDS OF APPLICATION

Transportation

Telco

Surveillance

Internet of Things

Industrial Automation and Control

Info Kiosks

FEATURES

Processor	Intel® Atom™ **E3845**, Quad Core @1.91GHz, 2MB Cache, 10W TDP Intel® Atom™ **E3827**, Dual Core @1.75GHz, 1MB Cache, 8W TDP Intel® Atom™ **E3826**, Dual Core @1.46GHz, 1MB Cache, 7W TDP Intel® Atom™ **E3825**, Dual Core @1.33GHz, 1MB Cache, 6W TDP Intel® Atom™ **E3815**, Single Core @1.46GHz, 512KB Cache, 5W TDP Intel® Atom™ **E3805**, Dual Core @1.33GHz, 1MB Cache, 3W TDP
Max Cores	4
Max Thread	4
Memory	Up to 8GB on DDR3L-1333 ECC SO-DIMM Slot (DDR3L-1333 with E3845 and E3827, DDR3L-1067 the others)
Graphics	Integrated Intel® HD Graphics 4000 series controller Dual independent display support HW decoding of H.264, MPEG2, MVC, VC1, VP8, MJPEG formats HW encoding of H.264, MPEG2 and MVC formats
Video Interfaces	HDMI connector Single / Dual Channel 18- / 24-bit LVDS connector
Video Resolution	HDMI, resolution up to 1080p @ 60Hz LVDS, resolution up to 1920 x 1200 CRT resolution up to 2560 x 1600
Mass Storage	Optional eMMC drive on-board 1 x standard SATA connector mini mSATA interface on miniCard slot (shared with miniPCI-e) microSD Card slot (combo connector)
Networking	Dual Gigabit Ethernet connector
USB	2 x USB 3.0 Host ports on Dual Type-A socket 2 x USB 2.0 Host ports on internal pin header 1 x USB 2.0 Host port on miniPCI-e slot
PCI-e	Half miniPCI-e slot (shared with mSATA)
Audio	Optional HD Audio Codec Cirrus Logic CS4207 Mic In, Line out internal pin header connector

Other Interfaces	miniSIM slot (combo connector) FAN connector Switch / LED Front Header I2C connector with INT and RST# signals
Serial Ports	2 x optional RS-232 / RS-422 / RS-485 Serial ports on internal pin Header
Power Supply	$12V_{DC}$ ± 5% RTC Battery with lead cable and connector
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Microsoft® Windows Embedded Compact 7 Linux (32 / 64 bit) Yocto
Operating Temperature*	0°C ÷ +60°C (Commercial temperature) -40° ÷ +85°C (Industrial temperature)
Dimensions	72 x 100 mm (2.83" x 3.93")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Information subject to change. Please visit www.seco.com to find the latest version of this datasheet

Bangalore, Bangalore Palace

SBC-A80-eNUC

SBC with the N-series Intel® Pentium® and Celeron® SOCs in the embedded NUC™ form factor

Multifunctional SBC on the new eNUC standard

HIGHLIGHTS

- embedded NUC™ Type 2 "Connectivity" module, 101.6 x 101.6 mm (4" x 4")
- Industrial range power supply
- Long lifetime
- HDMI, miniDP and eDP video connectors
- M.2 SSD and M.2 PCI-e slots
- Dual Gigabit Ethernet
- USB 3.0 Connectivity

Moon Island platform - Intel IoT gateway solution

MAIN FIELDS OF APPLICATION

- HMI
- Multimedia devices
- Industrial Internet of Things
- Industrial Automation and Control
- Info Kiosks
- Digital Signage - Infotainment
- Point of Sales

FEATURES

Processor	Intel® Pentium® **N3700**, Quad Core @1.6GHz (Turbo Boost 2.4GHz),2MB Cache, 6W TDP Intel® Celeron® **N3150**, Quad Core @1.6GHz (Turbo Boost 2.08GHz),2MB Cache, 6W TDP Intel® Celeron® **N3050**, Dual Core @1.6GHz (Turbo Boost 2.16GHz),2MB Cache, 6W TDP Intel® Celeron® **N3000**, Dual Core @1.04GHz (Turbo Boost 2.08GHz),2MB Cache, 4W TDP
Max Cores	4
Max Thread	4
Memory	2 x DDR3L SO-DIMM Slots with Dual Channel Support, up to 8GB DDR3L-1600
Graphics	Integrated Graphics Three independent display support
Video Interfaces	HDMI connector miniDP++ connector embedded Display Port (eDP) internal connector Camera interface connector
Video Resolution	HDMI: up to 4096x2160 24bpp @30Hz, 2560x1600 24bpp @60Hz DP, eDP: up to 2560x1600 24bpp @60Hz
Mass Storage	Optional eMMC drive on-board M.2 Key B Type 2260 SATA slot microSD Card slot SATA 7p F connector
Networking	2 x Gigabit Ethernet ports
USB	2 x USB 3.0 Host ports on Type-A sockets 2 x USB 2.0 Host ports on internal pin header 1 x USB 3.0 Host port on PCI-e M.2 slot

Audio	Audio available on HDMI interface HD Audio codec Combo TRSS connector with LineOut and MicIn support
Serial Ports	2 x RS-232 / RS-422 / RS-485 UARTS, on internal Pin Header
Other Interfaces	I2C Touch Panel connector M.2 Key B Type 2230 PCI-e and USB slot Front Panel Pin Header CIR (Consumer InfraRed) sensor
Power Supply	+18V_{DC} ÷ +32V_{DC} recommended +15V_{DC} ÷ +36V_{DC} absolute
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows 10 IoT Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Linux Yocto Android
Operating Temperature*	0°C ÷ +60 °C
Dimensions	101.6 x 101.6 mm (4" x 4")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

SBC-949-pITX

Pico-ITX SBC with Intel® Atom™ Cedar View family Processors

Low-cost x86 fanless solution

HIGHLIGHTS

- Space and power saving SBC with long term support
- Based on the Intel® Atom™ Cedar View dual core N2000 and D2000 CPU family
- 64-bit instruction set and Hyper Threading
- Impressive performance/power consumption ratio
- Suitable for fanless and low budget applications

intel IoT Solutions Alliance

Windows XP · Windows 7 · Windows Embedded Standard 2009 · Windows Embedded Standard 7 · Windows Embedded Compact 7 · Linux

MAIN FIELDS OF APPLICATION

HMI

Energy

Digital Signage - Infotainment

Robotics

Point of Sales

FEATURES

<table>
<tr><td>Processor</td><td>Intel® Atom™ D2550 @1.86GHz, 1MB Cache, 10W TDP
Intel® Atom™ N2800 @1.86GHz, 1MB Cache, 6.5W TDP
Intel® Atom™ N2600 @1.6GHz, 1MB Cache, 3.5W TDP</td></tr>
<tr><td>Max Cores</td><td>2</td></tr>
<tr><td>Max Thread</td><td>4</td></tr>
<tr><td>Chipset</td><td>Intel® NM10 Express Chipset</td></tr>
<tr><td>Memory</td><td>Up to 4GB DDR3 1066MHz SO-DIMM (up to 2GB with N2600)</td></tr>
<tr><td>Graphics</td><td>Integrated Intel® HD Graphics controller
Dual independent display support
Supports DirectX 9 Shader Model 3.0 and OpenGL rel. 3.0</td></tr>
<tr><td>Video Interfaces</td><td>HDMI connector
LVDS connector
VGA interface</td></tr>
<tr><td>Video Resolution</td><td><table><tr><td></td><td>N2xx CPU</td><td>D2550CPU</td></tr><tr><td>HDMI, CRT:</td><td>Up to 1920x1200</td><td>Up to 1920x1200</td></tr><tr><td>LVDS interface:</td><td>Up to 1366x768</td><td>Up to 1440x900</td></tr></table></td></tr>
<tr><td>Mass Storage</td><td>2 x SATA connectors</td></tr>
<tr><td>Networking</td><td>Up to 2 x Gigabit Ethernet connector</td></tr>
<tr><td>USB</td><td>2 x USB 2.0 Type A
4 x internal USB 2.0 ports</td></tr>
<tr><td>Audio</td><td>HD Audio Codec Realtek ALC886
Mic In, Line out internal pin header</td></tr>
<tr><td>Other Interfaces</td><td>FAN connector
Front Header Expansion connector</td></tr>
<tr><td>Power Supply</td><td>+12V_{DC} ± 10%
RTC Battery with lead cable and connector</td></tr>
</table>

Operating System	Microsoft® Windows XP Microsoft® Windows 7 Microsoft® Windows Embedded Standard 2009 Microsoft® Windows Embedded Standard 7 Microsoft® Windows Embedded Compact 7 Linux
Operating Temperature*	0°C ÷ +60°C
Dimensions	72 x 100 mm (2.83" x 3.94")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

SBC-992-pITX

SBC with AMD Embedded G-Series SoC in Pico-ITX form factor

RADEON GPU and Multi-core processing

HIGHLIGHTS

- Smallest standard SBC in the market
- Connectivity-oriented
- Dual LAN
- Multi-display support (LVDS - HDMI - eDP - VGA)
- USB 3.0 support

MAIN FIELDS OF APPLICATION

Gaming

Digital Signage - Infotainment

Thin Clients

Point of Sales

FEATURES

Processor	AMD **GX-420CA**, Quad Core @ 2.0GHz, 2MB L2 Cache, TDP 25W AMD **GX-415GA**, Quad Core @ 1.5GHz, 2MB L2 Cache, TDP 15W AMD **GX-217GA**, Dual Core @ 1.65GHz, 1MB L2 Cache, TDP 15W AMD **GX-210HA**, Dual Core @ 1.0GHz, 1MB L2 Cache, TDP 9W AMD **GX-210JA**, Dual Core @ 1.0GHz, 1MB L2 Cache, TDP 6W
Max Cores	4
Memory	Up to 8GB on DDR3 1600MHz SO-DIMM @1.5V (DDR3-1333MHz with GX-210HA, DDR3-1066MHz with GX-210JA)
Graphics	Embedded AMD HD RADEON GPUs HD8400E @ 600MHz (GX-420CA), HD8330E @ 500MHz (GX-415GA) HD8280E @ 450MHz (GX-217GA), HD8210E @ 300MHz (GX-210HA) HD8180 @ 225MHz (GX-210JA), Dual independent display support Supports DirectX® 11.1, OpenGL rel. 4.2 and OpenCL™ rel. 1.2
Video Interfaces	HDMI connector Single Channel 18bit LVDS connector **or** embedded Display Port connector CRT interface (requires external Video Adapter)
Video Resolution	HDMI, resolution up to 1920 x 1200 LVDS, resolution up to 1600 x 900 (up to 1920 x 1200 through external adapter) eDP, resolution up to 2560 x 1600 CRT, resolution up to 2048 x 1536
Mass Storage	2 x standard SATA connectors microSD Card slot (combo connector)
Networking	Up to 2 x Gigabit Ethernet connector
USB	2 x standard USB 3.0 Type A 4 x internal USB 2.0 ports USB 2.0 interface on miniPCI-e Slot
Audio	HD Audio Codec Realtek ALC886 Mic In, Line out internal pin header connector
PCI-e	Half miniPCI-e slot

Other Interfaces	miniSIM slot (combo connector) FAN connector Front Header Expansion connector
Power Supply	12V$_{DC}$ ± 10% RTC Battery with lead cable and connector
Operating System	Microsoft® Windows 7 (32 / 64 bit) Microsoft® Windows 8.1 (32 / 64 bit) Microsoft® Windows 10 (32 / 64 bit) Microsoft® Windows Embedded Standard 7 (32 / 64 bit) Microsoft® Windows Embedded Standard 8 (32 / 64 bit) Linux (32 / 64 bit)
Operating Temperature*	0°C ÷ +60°C
Dimensions	72 x 100 mm (2.83" x 3.94")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

SBC-A62-J

Single Board Computer with NXP i.MX6 Processor

Configurable, Open-source, Industrial SBC

JUST! EMBEDDED

"Ready-to-use" and "ready-to-market"
cost-effective product which
exclusively supports SoC native features

HIGHLIGHTS

- From the successful DIY community board, UDOO, born for the Industrial market
- The first open source embedded board on the market
- Operating Systems: Linux, Yocto, Android, WEC7
- A flexible solution, with a configurable expansion connector
- Fully scalable solution from high performance Quad Core CPU to an energy-efficient Solo Core
- Cost-effective

MAIN FIELDS OF APPLICATION

Point of Sales

Digital Signage - Infotainment

Industrial Internet of Things

This board is available in 3 configurations:

SBC-A62-J-SOLO
SBC-A62-J-LITE
SBC-A62-J-QUAD

FEATURES

Processor	NXP i.MX6 Family, based on ARM Cortex-A9 processors: **SBC-A62-J-SOLO**: Single Core i.MX6S @1GHz **SBC-A62-J-LITE**: Dual Core Lite (i.MX6DL) @1GHz **SBC-A62-J-QUAD**: Quad Core (i.MX6Q) @1GHz
Max Cores	4
Memory	Soldered on-board DDR3L memory***: SBC-A62-J-SOLO: 512MB 32-bit interface SBC-A62-J-LITE: 1GB 64-bit interface SBC-A62-J-QUAD: 1GB 64-bit interface
Graphics	Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D OpenVG™ accelerator (only SBC-A62-J-QUAD) HW encoding of MPEG-4, H.263 V2, H.264, MJPEG HW decoding of MPEG-2, VC1, MPEG-4 / XviD, H.263, H.264, DivX SBC-A62-J-SOLO and SBC-A62-J-LITE support up to 2 independent displays SBC-A62-J-QUAD supports up to 3 independent displays
Video Interfaces	1 x Dual Channel or 2 x Single Channel 18 / 24 bit LVDS interface HDMI interface 1.4
Video Resolution	HDMI: up to 1920 x 1080p LVDS: up to 1920 x 1200
Mass Storage	4GB eMMC drive soldered on-board*** microSD Card slot SBC-A62-J-QUAD: SATA connector
Networking	Gigabit Ethernet connector Internal USB connector for Wi-Fi Module
USB	2 x USB 2.0 Type-A ports and 1 x USB 2.0 internal connector USB micro-B Client port
Audio	SBC-A62-J-LITE and SBC-A62-J-QUAD: AC'97 Audio Codec Realtek ALC655 with Mic-In, Line-Out audio Jacks

Serial Ports	Debug UART interface, TTL voltage level. SBC-A62-J-LITE and SBC-A62-J-QUAD: dedicated CAN Bus connector (Transceiver CAN 3.3V) Other serial interfaces on the expansion connector: SBC-A62-J-SOLO: 1 x Serial (TTL level) - 2 x Serial (RS-232) - 2 x CAN (TTL level); SBC-A62-J-LITE: 1 x Serial (TTL level) - 2 x Serial (RS-232) - 1 x CAN (TTL level); SBC-A62-J-QUAD: 1 x Serial (RS-485) - 2 x Serial (RS-232) - 1 x CAN (TTL level)
Other Interfaces	Dedicated connector (I2C, GPIO signals) for external Touch Screen controller; MIPI-CSI Camera connector; Configurable* expansion connector with: Up to 28 GPIO - SPI interface - SPDIF Audio interface - CAN interface (TTL level) - SDIO interface - 3 x PWM - I2C - UARTs
Power Supply	$+12V_{DC}$; Additional embedded Low Power RTC; SBC-A62-J-SOLO and SBC-A62-J-LITE: internal i.MX6 Real Time Clock (external battery required for time/date retention, not included) SBC-A62-J-QUAD: low power Real Time Clock with onboard battery
Operating System	Free Android and Linux community BSP available at UDOO.org SECO Android (under development) and Linux BSP / WEC7 on request. Yocto Guideline valid for SECO BSP
Operating Temperature**	0°C ÷ +60 °C (Commercial temp.) For Industrial temp. (-40°C ÷ +85°C) please contact us
Dimensions	110 x 86.5 mm (4.5" x 3.7")

* Please note that some of these interfaces are factory options, other configurations are made via SW.

** Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

*** For additional configurability please contact us

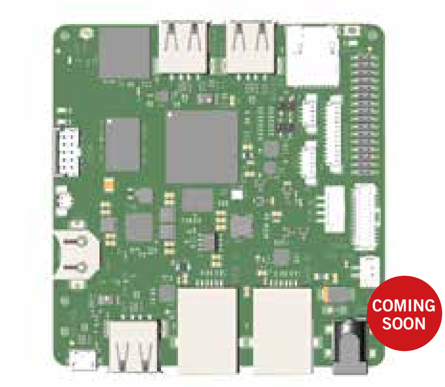
Information subject to change. Please visit www.seco.com to find the latest version of this datasheet

SBC-B08

Single Board Computer with NXP i.MX 6SoloX Processor

All-in-one IoT hybrid computing solution

Microsoft Azure
Certified


COMING SOON

HIGHLIGHTS

- From the success of UDOO NEO, the SBC born for Industry
- The ideal building block for any IoT project
- Wireless connectivity
- Linux or Android running on the Cortex®-A9 core
- Real-time OS on the Cortex®-M4 core

partner of NXP Linux android

MAIN FIELDS OF APPLICATION

Industrial Internet of Things
Digital Signage - Infotainment
Home entertainment
Info Kiosks
Multimedia devices

FEATURES

Processor	NXP **i.MX6SX SoloX** Processor, Single core Cortex®-A9 @ 1GHz + Cortex®-M4 core @ 227MHz
Max Cores	1 + 1
Memory	32-bit DDR3L memory soldered on-board, up to 1GB
Graphics	Integrated Graphics Vivante GC400T, 2D and 3D HW accelerator OpenGL ES 2.0, OpenGL ES 1.1, OpenVG 1.1 supported
Video Interfaces	Single Channel 18- / 24- bit LVDS connector + Touch Screen (I2C signals) 24-bit Parallel RGB Connector Video ADC input (PAL and NTSC formats supported)
Video Resolution	LVDS: up to 1366x768 @60Hz, 24bpp RGB: up to 1920x1080p @60Hz, 24bpp
Mass Storage	16MB NOR Quad-SPI Flash soldered on-board eMMC soldered on-board, up to 8GB µSD Card slot
Networking	Up to two Fast Ethernet RJ-45 connectors WiFi (802.11 b / g / n) +BT LE combo module + antenna on-board
USB	1 x USB 2.0 OTG port 3 x USB 2.0 Host ports on standard Type-A socket 1 x USB 2.0 Host port on internal pin header
Audio	I2S Audio interface on programmable pin header S / PDIF interface (In and Out) on programmable pin header
Serial Ports	1 x CAN Port with CAN transceiver on dedicated connector, optional 1 x CAN Port reconfigurable as GPIO 3 x UARTS on programmable pin header (optionally available with RS-232 or RS-485 interface)

Other Interfaces	2 x I2C dedicated connectors (one reserved for Touch Screen) 6 analog inputs for A / D Conversion Programmable (*) expansion pin header connector, able to offer: • Up to 26 GPIO • SPI interface • SPDIF Audio interface • I2S Audio interface • CAN interface (TTL level) • 3 x PWM • 2 x I2C • 3 x UARTs (TTL, RS-232 or RS-485 interface) (*) Please note that some of these interfaces are factory options, other configurations are made via SW using the pin multiplexing possibilities of the i.MX6SX processor.
Integrated Sensors	Optional 9-Axis Motion Sensors (Accelerometer, Magnetometer and Digital Gyroscope)
Power Supply	$+12V_{DC}$ nominal voltage Optional additional embedded Low Power RTC
Operating System	Android Linux
Operating Temperature*	0°C ÷ +60°C (Commercial version)
Dimensions	89.5 x 87 mm (3.52” x 3.43”)

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

SBC-984

Single Board Computer with NXP i.MX6 Processor

SECO's smallest, rugged, industrial SBC

HIGHLIGHTS

- The power of the NXP i.MX6 SoC in a credit card sized SBC
- Scalable multi-core ARM® Cortex™-A9 architecture
- It combines high performance graphics with power-efficient processing capabilities
- Flexible solution suitable for digital signage applications
- A multi-display platform for mobile fanless applications
- Best cost-benefit ratio

MAIN FIELDS OF APPLICATION

Digital Signage - Infotainment

Point of Sales

Industrial Automation and Control

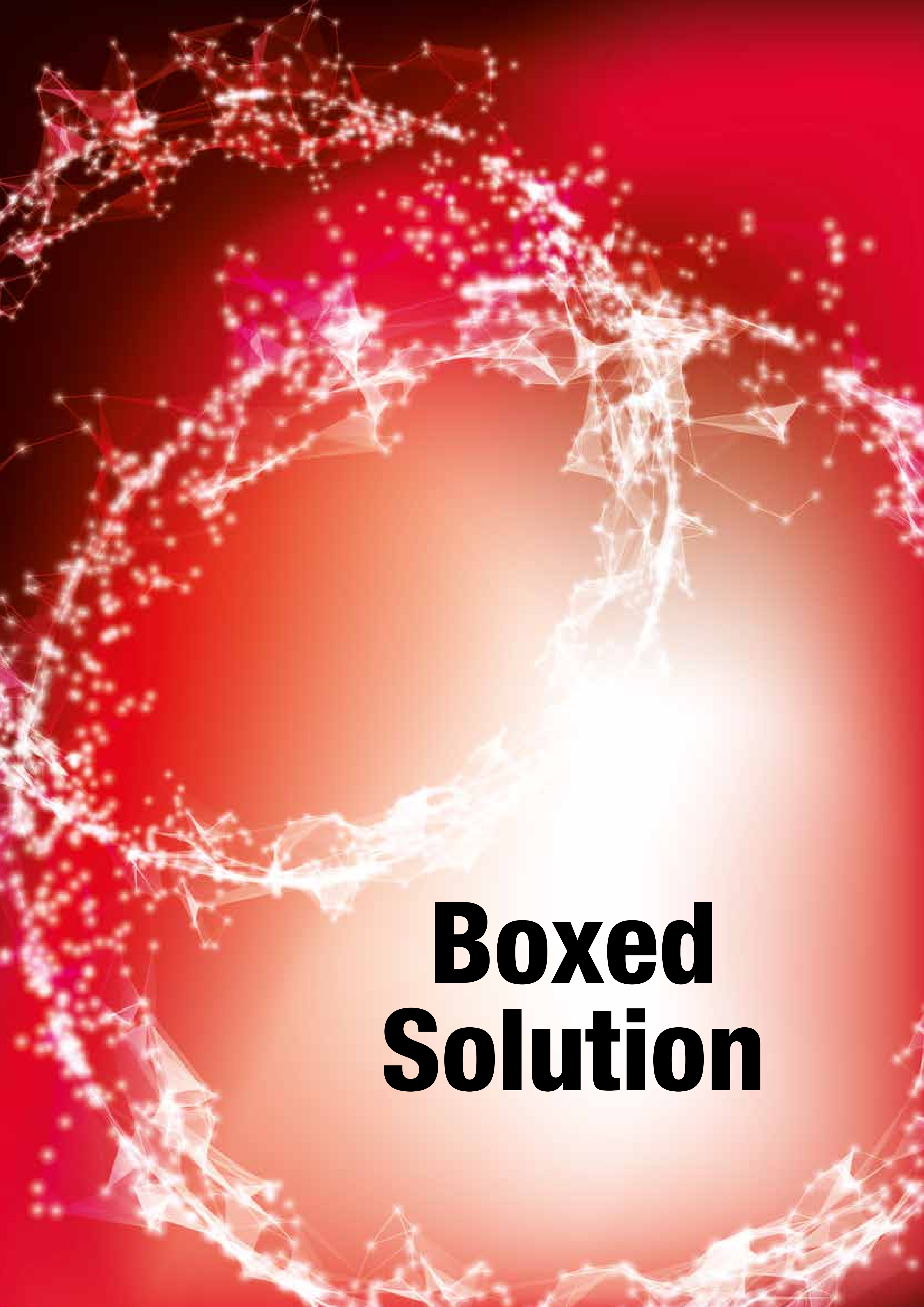
FEATURES

Processor	NXP i.MX6 Family, based on ARM® CORTEX-A9 processors - **i.MX6S Solo** - Single core up to 1GHz - **i.MX6DL Dual Lite** - Dual core up to 1GHz per core - **i.MX6D Dual** - Dual core up to 1GHz per core - **i.MX6Q Quad** - Quad core up to 1GHz per core
Max Cores	4
Memory	Up to 2GB DDR3L on-board (up to 1GB with i.MX6S)
Graphics	Dedicated 2D Hardware accelerator Dedicated 3D Hardware accelerator, supports OpenGL® ES2.0 3D Dedicated Vector Graphics accelerator supports OpenVG™ (only i.MX6D and i.MX6Q) Supports up to 3 independent displays with i.MX6D and i.MX6Q Supports 2 independent displays with i.MX6DL and i.MX6S
Video Interfaces	1 x LVDS Dual Channel or 2 x LVDS Single Channel 18 / 24 bit interface HDMI Interface Video Input Port / Camera connector (only with PCB rev. C or higher)
Video Resolution	LVDS up to 1920x1200 HDMI up to 1080p
Mass Storage	On-board eMMC drive, up to 8 GB mSATA Half-size slot (shared with miniPCI-express)
Networking	Gigabit Ethernet connector
USB	3 x standard USB 2.0 Type A 1 x USB OTG on micro-AB connector Internal USB for optional WiFi module
Audio	AC'97 Audio Codec Mic In, Line out internal pin header connector
PCI-e	miniPCI-express slot, shared with mSATA (only PCI-e 1.1 and Gen2 are supported)

Serial Ports	1 x RS-232 serial port TTL debug UART (Tx, RX only) CAN interface internal connector
Other Interfaces	I2C touch Connector Internal connector for power and reset buttons
Power Supply	+12V$_{DC}$ ± 10% Embedded additional RTC circuitry for lowest power consumption Optional RTC Battery with lead cable and connector
Operating System	Linux
Operating Temperature*	0°C ÷ +70 °C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	80 x 67 mm (3.15" x 2.64")

*Measured at any point of the heatspreader/heatsink during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

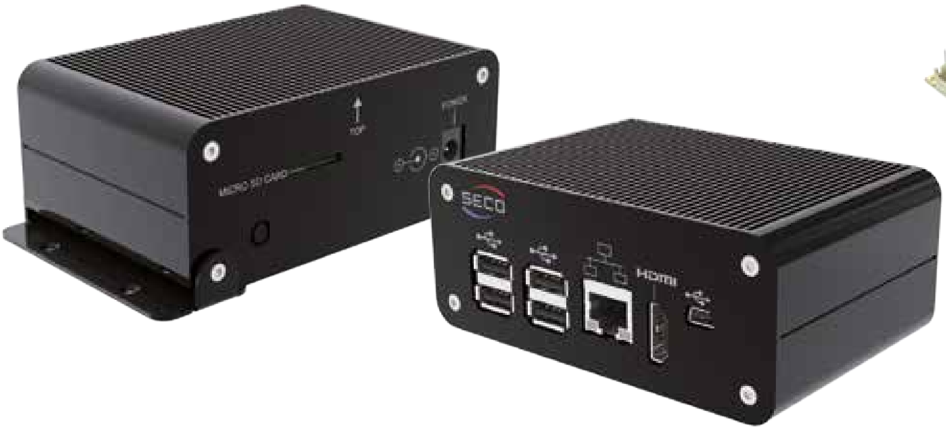
Taipei, skyline

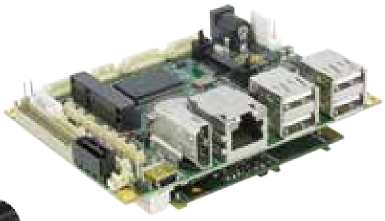


Boxed Solution

Boxed Solution B901

System protection for harsh environments





CQ7-901

MAIN FIELDS OF APPLICATION

Energy

Industrial Automation and Control

The boxed solution B901 supports the carrier board on Pico-ITX Form Factor (CQ7-901) and the following module:

Q7-928

FEATURES OF CQ7-901

Video Interfaces	LVDS Interface, 34 pin 2mm pin header Backlight Connector, 6 pin, 2mm Pin Header HDMI Connector
Mass Storage	1 x SATA connector µSD Card Slot
Networking	1 x Gigabit / FastEthernet connector 1 x optional additional FastEthernet port
USB	Up to 7 x USB 1.1 / 2.0 ports (1 x USB client)
PCI-e	1 x miniPCI Express slot
Audio	AC'97 and HD Audio Codec**, jumper selectable Line In, Mic In on internal pin headers Earphone pin header ** available only on Industrial version
Serial Ports	1 x RS-232 (RS-422 / RS-485 configurable) 1 x TTL-level serial port CAN Interface
Other Interfaces	8 x GPIO on 10-Pin Header Connector 4-Wire Touch Screen controller integrated SM Bus Pin Header I2C Bus, SPI interface SIM Card slot for miniPCI Express modems Internal Pin Header for Power, Lid, Sleep and Reset Button
Power Supply	On-board rechargeable Lithium Battery for CMOS Backup and RTC 12V Power jack Power On Status LED

Operating Temperature*	0°C ÷ +60°C (Commercial version) -40°C ÷ +85°C (Industrial version)
Dimensions	100 x 72 mm (3.94" x 2.83")

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperature is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

Arezzo, Piazza Grande

Information subject to change.
Please visit www.seco.com to find the latest version of the SECO PRODUCT LINE datasheets.

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SECO

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