## INDEX

### Qseven®
- Q7-B03 p. 10
- Q7-C26 p. 11
- Q7-C25 p. 11
- Q7-A36 p. 12
- Q7-974 p. 12
- Q7-928 p. 13

### μQseven®
- μQ7-C72 p. 13
- μQ7-A76-J p. 14
- μQ7-962 p. 14
- μQ7-A75-J p. 15

### Carrier Board
- CQ7-A42 p. 15

### Development Kit
- Q7 DEV KIT 2.0 p. 16
- Q7 STARTER KIT 2.0 p. 16

### SMARC
- SM-B69 p. 17
- SM-C12 p. 18
- SM-B71 p. 18

### Development Kit
- SMARC DEV KIT p. 19

### COM Express™

#### Type 7
- COMe-C42-BT7 p. 20

#### Development Kit
- COM EXP T7 DEV KIT p. 21

#### Type 6
- COMe-C55-CT6 p. 21
- COMe-C08-BT6 p. 22
- COMe-C89-CT6 p. 22
- COMe-B75-CT6 p. 23
- COMe-C24-CT6 p. 23
- COMe-B09-BT6 p. 24
- COMe-A98-CT6 p. 24
- COMe-A41-CT6 p. 25
- COMe-953-BT6 p. 25

#### Carrier Board
- CCOMe-C30 p. 26

#### Development Kit
- COM EXP T6 DEV KIT p. 26

### ETX®
- ETX-A61 p. 27

### Single Board Computer
- SBC-C90 p. 28
- SBC-C43 p. 29
- SBC-C20 p. 29
- SBC-C41-pITX p. 30
- SBC-C57 p. 30
- SBC-C31 p. 31
- SBC-C66 p. 31
- SBC-C23 p. 32
- SBC-B08 p. 32
- SBC-A62-J p. 33
- SBC-A44-pITX p. 33
- SBC-B68-eNUC p. 34
- SBC-A80-eNUC p. 34

### Modular HMI & Boxed Solutions
- SYS-A62-10 p. 35
- SYS-B08-7 p. 36
- SYS-C90-DS p. 36
- SYS-B68-IPC p. 37

### Smart Edge Computing
- SYS-C23-IGW p. 38
- SYS-B68-IGW p. 39
- SBC-C61 p. 39
- SENSE-D01 p. 40
- SYS-A90-IPC p. 40
SECO designs and manufactures embedded systems in-house.

SECO offers a wide range of **standard modules**, **SBCs**, **systems** and **custom solutions** to leverage innovative, state-of-the-art technologies. Thanks to its drive for continuous evolution and relying on its strong know-how, SECO responds to new challenging market demands with cutting edge solutions, and a strong focus on the Internet of Things.
Beyond the long-established and consistent hardware product portfolio, SECO offers custom design, system integration, and a range of multi-sector, customer centric services, such as BIOS customization, surface treatments, PCB specific certifications for industry requirements like transportation, amongst others. SECO manages the entire production cycle in-house, from the development and design stage to manufacturing to mass distribution. SECO always aims to serve as a true collaborative technology partner for its customers' special projects.
SECO's solutions today can be found at the heart of the most sophisticated and diverse products throughout various industries, such as traditional uses in industrial automation, biomedical devices, digital signage and across more modern applications like the Internet of Things and robotics.
SERVICES

YOUR TECHNOLOGY PARTNER FOR CUSTOMIZED COMPUTING PLATFORMS
- Design review
- Off-the-shelf SBCs customization
- Carrier board design for modular computing platforms
- Full custom SBC design
- x86, ARM & FPGA know-how
- Secure your design & production in our HQ - Italy

YOUR TECHNOLOGY PARTNER FOR SOFTWARE CUSTOMIZATION
- Customized BIOS
- Firmware & driver development
- BSP development
- Long-term support

YOUR TECHNOLOGY PARTNER FOR SYSTEMS AND ASSEMBLY
- Software pre-installed on your system
- Assembly services
- Design and production of your boxed solution
- Touch-display solutions
- Design and production of your final product

YOUR TECHNOLOGY PARTNER FOR THE INDUSTRIAL INTERNET OF THINGS
EVERYTHING YOU NEED TO POWER YOUR IoT PRODUCT, FROM DEVICE TO CLOUD

Prototyping Tools
Industrial IoT Hardware
Connectivity
IoT Device Cloud
IoT Apps
EDGEHOG is a multitasking industrial device management platform. It’s the tool you need to maintain connected embedded systems, update and configure your system and fleet with a couple of clicks.

EDGEHOG is a One-Stop IoT Solution, a bridge between hardware and cloud. Let EDGEHOG take care of connections, OTA updates and keep your focus on anything but your core application development.

**UX**
UX and Service Design Consulting

**HW Integration and Customization**
- Powerful arm and x86 GW solutions
- Custom Gateways
- PLCs and Sensors integration

**OTA Updates**
EDGEHOG Device Management perform OS security and software updates

**Geolocation**
The exact position of your devices. Always under control

**Cloud Connectivity**
Mobile connection with Telenor Connexion
Wi-Fi/BT and LAN

**Container Runtime**
Smooth application deployment and updatability

**OS**
- Embedded Software

**OS and Firmware**

**Service Offering**

**API Cloud**
EDGEHOG Device Management APIs: integrate Edgehog Device Management on third-party applications, such as customers’ applications

**Remote Control**
Remote managing of Gateways status connection, memory, processor, SSH access, battery status

**Telemetry Agent**
EDGEHOG Telemetry Agent collects telemetry data from sensors, either physical or synthetic. Local DB to prevent data loss

**Predictive Maintenance on the Edge**
Machine learning algorithm for detecting GW status and the predictive maintenance of the connected device

**Machine Learning on the Edge**
EDGEHOG is an optimized Machine Learning solution from both hardware (NPU) and software (Continuous Features Updates and Production) point of view

**Security and Self-Maintainance**
Integrated firewall, IDS, IPS Encryption via SSL/TLS Certificate. EDGEHOG Enactive System enables EDGEHOG Core Software to be self-maintained and self-regulated
The Edgehog Device Management Web Portal allows the IoT Manager, IT Manager and Sales Manager to:

- control and configure devices
- manage OS and software updates
- know the location of your devices
- upload and deploy your apps on your devices
- manage your containers
- have an overview of the services purchased
- have the details of the service cost and use

### One-Stop IoT Solution: Hardware to Cloud

<table>
<thead>
<tr>
<th>Integrate</th>
<th>API’s, Connectors, Data/Event Processors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>Device control, Application updates, Security updates, Dev Tools, Control, Security, Rules, Visualization</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cloud Connection</th>
<th>Communicate</th>
<th>Mobile: LTE, 5G, NB-IoT, LTE-M</th>
<th>Wi-Fi/BT, LAN, Z-Wave, Zigbee, LoRa</th>
<th>High performance, bi-directional, efficient IoT protocols</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>EDGEHOG</th>
<th>Integrate</th>
<th>OS</th>
<th>Core Logic</th>
<th>Device Applications</th>
<th>Connect Multi-protocol field connectors: Modbus, I2C, ..</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS, Edge Agents, Synthetic Sensors</td>
<td>Communicate</td>
<td>Mobile: LTE, 5G, NB-IoT, LTE-M</td>
<td>Wi-Fi/BT, LAN, Z-Wave, Zigbee, LoRa</td>
<td>High performance, bi-directional, efficient IoT protocols</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SBC Gateways ARM/x86, Custom HW solutions, Sensors</th>
<th>Hardware</th>
<th>SBC Gateways ARM/x86</th>
<th>Custom HW solutions</th>
<th>Sensors, Actuators, ..</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hardware Integration, Hardware certification, ..</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Device Management

The Edgehog Device Management Web Portal allows the IoT Manager, IT Manager and Sales Manager to:
Qseven® Rel. 2.1 with the Intel® Atom™ X Series, Intel® Celeron™ J / N Series and Intel® Pentium™ N Series (formerly Apollo Lake) Processors

High graphics performance and extreme temperature for low power designs

Q7-B03

SECO is one of the founding members of SGET and a co-founder of the Qseven® standard

Cost effective solution for high volume projects
Low power consumption
Compact form factor
Low profile design
Excellent for IoT projects
High speed MXM edge connector

COMPUTER-ON-MODULE APPROACH

Design investment limited to the carrier board
Consolidated Standard form factor
Scalable and future-proof
Long-term availability
ARM and x86 cross-compatibility
Multi-vendor solution
Highly configurable
Innovative and upgradable
Accelerated time-to-market

Qseven® FEATURES OVERVIEW

Intel® Atom™ x5-E3830 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP
Intel® Atom™ x5-E3840 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP
Intel® Atom™ x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP
Intel® Pentium® N4200 Quad Core @1.1GHz (Burst 2.5GHz), 2MB L2 Cache, 6W TDP
Intel® Celeron® N3350 Dual Core @1.1GHz (Burst 2.4GHz), 2MB L2 Cache, 6W TDP
Intel® Celeron® J3455, Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2Cache, 10W TDP
Intel® Celeron® J3355, Dual Core @2.0GHz (Burst 2.5GHz), 2MB L2Cache, 10W TDP

Max Cores 4
Max Thread 4

Memory Dual Channel Soldered Down DDR3L-1866 memory, up to 8GB

Graphics
Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units
Three Independent displays supported
HW decoding of HEVC(H.265), H.264, MVC, VP8, VP9, MPEG2, VC-1, WMV9, JPEG/MJPEG formats
HW encoding of HEVC(H.265), H.264, MVC, VP8, VP9 and JPEG/MPEG formats

Video Interfaces
eDP interface or Single/Dual Channel 18/24bit LVDS interface
HDMI or DP++ interface

Video Resolution
DP: Up to 4096 x 2160 @60Hz
eDP: Up to 3840 x 2160 @60Hz
HDMI: Up to 3840 x 2160 @30Hz
LVDS, VGA: Up to 1920 x 1200 @ 60Hz

Mass Storage
Optional eMMC 5.0 drive soldered on-board
2 x external S-ATA Gen3 Channels
SD interface

Networking
Gigabit Ethernet interface
Intel® I210 or I211 Controller (MAC + PHY)
6 x USB 2.0 Host Ports
2 x USB 3.0 Host Ports (**)

USB
(*) Second USB 3.0 Host port can be exploited only using Qseven® Rel. 2.1 compliant Carrier boards
4 x PCI-e Rost Ports (including the PCI-e port used for Gigabit Ethernet controller)

Audio
HD Audio interface

PCI-e
6 x PCI-e Gen3 Channels (SD interface)

Serial Ports
1 x UART, TTL interface
i2C Bus
LPC Bus
SM Bus
SPI interface
Watch Dog Timer
Other Interfaces
Thermal / FAN management
Power Management Signals

Power Supply
+5VDC and +5Vg (optional)

Operating System
Microsoft® Windows 10 Enterprise (64 bit)
Microsoft® Windows 10 IoT Core

Dimensions
70 x 70 mm (2.76 x 2.76"

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
Take advantage of the wide scalability offered by Qseven® form factor and the i.MX 8 family.

Qseven® Rel. 2.1
with NXP i.MX 8 Applications Processors

**Q7-C26**

Available in Industrial Temperature Range

| Processor          | NXP i.MX 8 Family:
|--------------------|------------------|
|                    | • i.MX 8QuadMax - 2x Cortex®-A72 cores + 4x Cortex®-A53 cores + 2x Cortex®-M4F cores
|                    | • i.MX 8QuadPlus - 1x Cortex®-A72 cores + 4x Cortex®-A53 cores + 2x Cortex®-M4F cores
|                    | • i.MX 8Quad - 4x Cortex®-A53 cores + 2x Cortex®-M4F cores
| Memory             | Soldered Down LPDDR4-3200 memory, 64-bit interface
| Graphics           | Integrated Graphics Processing Unit, supports 2 independent displays.
|                    | Embedded VPU, supports HW decoding of HEVC/H.264, AVC/H.263, MPEG-2, VC-1, RVS, VPB, H.263 and MPE4 part, HW encoding of AVC/H.264
| Video Interfaces   | Supports OpenGL ES 3.1, Open GL 1.2, OpenGL 3.x, DirectX 11
| Video Resolution   | HDMI 2.0a or DP 1.3 interface, supporting HDCP 2.2 Dual Channel or 2 x Single Channel 18 / 24-bit LVDS interface
| Mass Storage       | 1x SATA Gen3 interface (alternative to 1x PCI-e x1 port) eMMC 5.1 drive soldered-on-board
|                    | SD 4-bit interface
|                    | QSPI Flash soldered-on-board
| Networking         | 1 x Gigabit Ethernet interface
| USB                | 4 x USB 2.0 Host Ports
|                    | 1 x USB 3.0 Host Port
|                    | 1 x USB 2.0 OTG port
| PCI-e              | Up to 2x PCI-e x1 Gen3 ports
| Audio              | I2S Audio Interface
| Serial Ports       | 1x UART Tx/Rx/RTS/CTS 1x CAN Bus (TTL level)
| Other Interfaces   | CSI camera connector
|                    | 2x I2C Bus
|                    | 8 x SPI/IOs
|                    | Boot select signal
|                    | Power Management Signals
| Power Supply       | +5Vdc ±5%
|                    | +3.3V_RTC
| Operating System   | Linux
|                    | Yocto
|                    | Android
| Operating
| 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 SECQ standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

**Qseven® solution for next generation embedded systems**

Qseven® Rel. 2.1
with NXP i.MX 8M Applications Processors

**Q7-C25**

Available in Industrial Temperature Range

| Processor          | NXP i.MX 8M Family based on ARM Cortex®-A53 cores + general purpose Cortex®-M4 processor:
|--------------------|------------------|
|                    | • i.MX 8M Quad - 4x Cortex®-A53 cores up to 1.5GHz
|                    | • i.MX 8M Quad - 2x Cortex®-A53 cores up to 1.5GHz
|                    | • i.MX 8M QuadLite - 4x Cortex®-A53 cores up to 1.5GHz, no VPU
| Memory             | Soldered Down DDR4-2400 memory, dual-channel 32-bit interface, up to 4GB
| Graphics           | Integrated Graphics Processing Unit, supports 2 independent displays.
|                    | Embedded VPU, supports HW decoding of HEVC/H.264, AVC/H.263, MPEG-4, MPEG1-2, AVC, VC-1, RV, DivX, VPB, VP6, VP8, JPEG (not for i.MX8M QuadLite).
| Video Interfaces   | Supports OpenGL ES 3.1, Open CL 1.2, OpenGL 2.x, DirectX 11
| Video Resolution   | HDMI 2.0a / Display Port 1.3 interface, supporting HDCP 2.2 Dual Channel or 2 x Single Channel 18 / 24-bit LVDS interface
| Mass Storage       | eMMC 5.0 drive soldered-on-board, up to 64GB
|                    | Optional microSD slot on board
|                    | QSPI Flash soldered-on-board
| Networking         | 1 x Gigabit Ethernet interface
| USB                | 4 x USB 2.0 Host Ports
|                    | 1 x USB 3.0 OTG Ports
|                    | Up to 4 x USB 2.0 OTG Ports
| PCI-e              | 1 x PCI-e x1 slot, optional
| Audio              | I2S Audio Interface
| Serial Ports       | 1x UART Tx/Rx/RTS/CTS (Optional)
|                    | 1x Can Bus (TTL level)
| Other Interfaces   | CSI camera connector
|                    | 2x I2C Bus
|                    | 8 x SPI/IOs
|                    | Boot select signal
|                    | Power Management Signals
| Power Supply       | +5Vdc ±5% and +3.3Vdc (optional)
|                    | +3.3V_RTC
| Operating System   | Linux
|                    | Yocto
|                    | Android
| Operating
| 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 SECQ standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

www.seco.com
Mobile-oriented with eMMC and Camera Interface

**Q7-A36**

**Qseven® with the Intel® Atom™ E3800 families (formerly Bay Trail) SoC**

**Qseven® with the Intel® Atom™ E3800 and Celeron® families (formerly Bay Trail) SoC**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Atom™ E3845, Quad Core @1.91GHz, 2MB Cache, 10W TDP</th>
<th>Intel® Celeron® N2807, Dual Core @1.58GHz, 1MB Cache, 4.3W TDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Cores</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Memory</td>
<td>Soldered on-board DDR3L memory E3845, E3827, J1900, N2930: up to 8GB (Dual-Channel DDR3L 1333MHz) E3865: up to 8GB Dual-Channel DDR3L 1066MHz N2807: up to 4GB Single-Channel DDR3L 1333MHz E3825, E3815: up to 4GB Single-Channel DDR3L 1066MHz</td>
<td>Soldered on-board DDR3L memory N2807: up to 4GB Single-Channel DDR3L 1333MHz E3825, E3815: up to 4GB Single-Channel DDR3L 1066MHz</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® HD Graphics 4000 series controller (not for E3805) Dual independent display support HW decoding of H.264, MPEG2, MVC, VPI, VP8, MJPEG formats HW encoding of H.264, MPEG2 and MVC formats</td>
<td>Embedded Display Port or 18 / 24 bit dual channel LVDS interface Optional Camera interface</td>
</tr>
<tr>
<td>Video Interfaces</td>
<td>HDMI, Display Port, eDP: Up to 1920x1080@60Hz Optional LVDS interface: Up to 1920x1200@60Hz</td>
<td>HDMI, Display Port, eDP, CRT: Up to 2560x1600@60Hz Optional LVDS interface: Up to 1920x1200@60Hz</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>Up to 2 x external SATA channels SD interface Optional eMMC Drive soldered on-board</td>
<td>Up to 2 x external SATA channels SD interface Optional SATA Flash Drive soldered on-board</td>
</tr>
<tr>
<td>Networking</td>
<td>Gigabit Ethernet interface 1 x USB 3.0 Host port 6 x USB 2.0 Host ports (one shared with USB 3.0 interface) 3 x PCI-e x1 lanes</td>
<td>Gigabit Ethernet interface 1 x USB 3.0 Host port 6 x USB 2.0 Host ports (one shared with USB 3.0 interface) 3 x PCI-e x1 lanes</td>
</tr>
<tr>
<td>Power Supply</td>
<td>+5VDC ± 5%</td>
<td>+5VDC ± 5%</td>
</tr>
</tbody>
</table>

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
### Improved speed & power efficiency with NXP’s first MPU with 14LPC FinFET process technology

#### µQ7-C72

<table>
<thead>
<tr>
<th>Processor</th>
<th>NXP i.MX 8M Family based on ARM® Cortex®-A53 cores + general purpose Cortex®-M7 710MHz processor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.MX 8M Nano Quad Lite</td>
<td>Full featured, 4x Cortex®-A53 cores up to 1.5GHz, no VPU, no GPU</td>
</tr>
<tr>
<td>i.MX 8M Nano Solo Lite</td>
<td>1x Cortex®-A53 cores up to 1.8GHz, no VPU</td>
</tr>
<tr>
<td>Power Supply</td>
<td>+5V and +5VSB (optional)</td>
</tr>
<tr>
<td>Operating System</td>
<td>Linux (Yocto)</td>
</tr>
<tr>
<td>Operating Temperature*</td>
<td>0°C to 70°C (commercial temp.), -40°C to 85°C (extended temp.)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>40 x 70 mm (µQseven, 1.57&quot; x 2.76&quot;)</td>
</tr>
</tbody>
</table>

#### µQ7-928

<table>
<thead>
<tr>
<th>Processor</th>
<th>NXP i.MX 6 Family, based on ARM® Cortex®-A9 processors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.MX 6 Quad Lite</td>
<td>Dual core up to 1GHz per core</td>
</tr>
<tr>
<td>i.MX 6 Dual</td>
<td>Dual core, up to 1GHz per core</td>
</tr>
<tr>
<td>i.MX 6LP Dual</td>
<td>Dual core, up to 1GHz per core</td>
</tr>
<tr>
<td>i.MX 6LP Quad</td>
<td>Quad core, up to 1GHz per core</td>
</tr>
<tr>
<td>Max Cores</td>
<td>4</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 4GB DDR3L on-board (up to 2GB with i.MX6S)</td>
</tr>
<tr>
<td>Graphics</td>
<td>Vivante GC320 2D accelerator + GCNanoUltra 3D accelerator</td>
</tr>
<tr>
<td>Video Interfaces</td>
<td>HDMI, up to 1080p, or Single/Dual Channel 18/24 bit interface</td>
</tr>
<tr>
<td>Video Resolution</td>
<td>LVDS Single Channel up to 24 bit interface, HDMI Interface 1.4</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>eMMC 5.1 drive on-board, up to 64GB</td>
</tr>
<tr>
<td>Networking</td>
<td>Gigabit Ethernet interface</td>
</tr>
<tr>
<td>USB</td>
<td>5x USB 2.0 Host interfaces</td>
</tr>
<tr>
<td>Power Management Signals</td>
<td>Power Management Signals</td>
</tr>
<tr>
<td>Power Supply</td>
<td>+5Vdc ± 5%</td>
</tr>
</tbody>
</table>

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
### μQ7-A76-J

**Smallest x86 standard module at proprietary costs**

#### μQseven® with the Intel® Atom™ E3800 and Celeron® families (formerly Bay Trail)

**μQ7-A76-J**

- **Processor**
  - Intel® Celeron® N2807, Dual Core @1.86GHz, 1MB Cache, 4.3W TDP
  - Intel® Atom™ E3815, Single Core @1.86GHz, 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

- **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**
  - LPC Bus, SM Bus
  - Thermal / FAN management
  - Power Management Signals

- **Power Supply**
  - +5Vdc ± 5%

### μQ7-962

**Optimal balance of performance and size**

#### μQseven® with NXP i.MX 6 Processor

**μQ7-962**

- **Processor**
  - NXP i.MX 6 Family, based on ARM® CORTEX-A9 processors
    - i.MX6GS - Solo - Single core up to 1GHz
    - i.MX6DL - Dual Lite - Dual core up to 1GHz per core
    - i.MX6D - Quad - Dual core up to 1GHz per core
  - i.MX6Q - Quad - Dual 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)

- **Video Resolution**
  - LVDS Single Channel 18 / 24 bit interface
  - HDMI Interface 1.4

- **Mass Storage**
  - Up to 8 GB eMMC drive soldered on-board

- **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, SPI Bus
  - SM Bus
  - Thermal / FAN management
  - Power Management Signals

- **Power Supply**
  - +5Vdc ± 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 SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
μQseven® with NXP i.MX 6 Processor

μQ7-A75-J

Small, flexible OTS module at proprietary costs

**Cross-compatible platform with x86 and ARM solutions**

Available in Industrial Temperature Range

| Processor | NXP i.MX 6 Family, based on ARM® CORTEX-A9 processors
| Max Cores | 2
| Memory | Up to 1GB DDR3L on-board (up to 512MB with i.MX6S Solo) 32-bit I/F
| Graphics | Dedicated 3D Hardware accelerator
| Video Interfaces | 1 x LVDS Single Channel or 2 x LVDS Single Channel 18 / 24 bit interface
| Video Resolution | LVDS, resolution up to 1920x1200
| Mass Storage | SD / MMC / SDIO interface
| Networking | FastEthernet (10 / 100 Mbps) interface
| USB | 1 x USB OTG 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)
- 12C interfaces
- SPI interface
- Additional Audio interface
- Only the combinations are allowed simultaneously

| Power Supply | +5VDC ± 5% Optional Low Power RTC
| Operating System | Yocto
| Operating Temperature | 0°C to +60°C (Commercial temp.)
| Dimensions | 40 x 70 mm (1.57” x 2.76”)

(*) not all the combinations are allowed simultaneously

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

CQ7-A42

Feature rich for fast Time-to-market

Available in Industrial Temperature Range

| Video Interfaces | UVOS Dual Channel 24-bit + backlight connectors or 2 x eDP connectors
| Mass Storage | 1 x mSATA Slot microSD Slot on combo microSD + SIM connector
| Networking | Up to 2 x Gigabit Ethernet connectors
| USB | 1 x USB 2.0 Host port on Type-A socket
| USB | 1 x USB 2.0 Host ports on double Type-A sockets
| USB | 1 x USB 2.0 Host ports on internal pin header
| USB | 1 x USB 2.0 OTG port on micro-AB socket (USB port shared with miniPCI-e 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
| Serial Ports | 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
| Other Interfaces | LPC Bus internal pin header
| Other Interfaces | LM3570 / LM3599 temperature sensors
| Other Interfaces | 12V Tachometric FAN connector
| Other Interfaces | Optional Debug USB port on miniB socket
| Power Supply | +12Vc Mini-fit Standard ATX power connector
| Power Supply | Coin cell battery Holder for CMOS and RTC
| Operating Temperature | -40°C to +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.**
### Development Kit Q7 DEV KIT 2.0

- Cross-compatible platform with x86 and ARM solutions
- Development kits for Qseven® and µQseven modules
- Everything you need for flexible development

<table>
<thead>
<tr>
<th>Features of Q7-A30</th>
<th>Features of Q7-A42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Interfaces</td>
<td>Video Interfaces</td>
</tr>
<tr>
<td>HDMI / Display Port interface on PCI-e x16 slot</td>
<td>LVDS Dual Channel 24-bit + backlight connectors or 2 x eDP connectors</td>
</tr>
<tr>
<td>SATA Female 7p connector with dedicated Power connector, interface shared with mSATA Slot</td>
<td>Multimode Display Port or HDMI Connector</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>Mass Storage</td>
</tr>
<tr>
<td>SATA Mate 7+15p connector</td>
<td>1 x mSATA connector with HDD Power connector</td>
</tr>
<tr>
<td>SD / MMC Card Slot</td>
<td>1 x mSATA Slot</td>
</tr>
<tr>
<td>SPI Flash Socket</td>
<td>microSD Slot</td>
</tr>
<tr>
<td>I2C EEPROM Socket</td>
<td>SSD Slot</td>
</tr>
<tr>
<td>Networking</td>
<td>Networking</td>
</tr>
<tr>
<td>Gigabit Ethernet connector</td>
<td>Up to 2 x Gigabit Ethernet connectors</td>
</tr>
<tr>
<td>USB</td>
<td>USB</td>
</tr>
<tr>
<td>1 x USB 3.0 Host Type-A socket</td>
<td>1 x USB 3.0 Host port on Type-A socket</td>
</tr>
<tr>
<td>2 x USB 2.0 Host ports on internal pin header (alternative to USB 3.0 port #0)</td>
<td>2 x USB 2.0 Host ports on double Type-A sockets</td>
</tr>
<tr>
<td>Up to 4 x USB 2.0 Host ports on quad Type-A socket</td>
<td>2 x USB 2.0 Host ports on internal pin header</td>
</tr>
<tr>
<td>PCI-e</td>
<td>PCI-e</td>
</tr>
<tr>
<td>PCI-e x4 interface on dedicated PCI-e x16 slot shared with 3 x PCI-e x1 slots</td>
<td>miniPCI-e slot Full / Half Size, combined with SIM card slot</td>
</tr>
<tr>
<td>Audio</td>
<td>Audio</td>
</tr>
<tr>
<td>Embedded HD Audio Codec, Realtek ALC8888</td>
<td>Audio interface on internal pin header</td>
</tr>
<tr>
<td>2 x Triple HD Audio jacks</td>
<td>4-wires RS-232 / RS-422 / RS-485 configurable serial port on DB9 male connector</td>
</tr>
<tr>
<td>2 S / PDPF connectors (In &amp; Out)</td>
<td>CAN interface on PGB terminal block</td>
</tr>
<tr>
<td>Audio Expansion Slot</td>
<td>SPI internal pin header</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>LPC Bus internal pin header</td>
</tr>
<tr>
<td>CAN Bus (both TTL interface and with CAN transceiver)</td>
<td>SM Bus / 2C GPIO expander, makes available 16 x GPIOs on internal pin header</td>
</tr>
<tr>
<td>3 x RS-232 only ports</td>
<td>Other Interfaces</td>
</tr>
<tr>
<td>2 x RS-232 / RS-422 / RS-485 configurable serial ports</td>
<td>Front Panel Header</td>
</tr>
<tr>
<td>Other Interfaces</td>
<td>Interfaces</td>
</tr>
<tr>
<td>Feature Connector, with I2C, SM Bus, Watchdog, Thermal and Power Management Signals</td>
<td>1 x 28 pin connector for additional features (I2C, ACPi signals, SM Bus, Watch Dog, Thermal Management)</td>
</tr>
<tr>
<td>LPC Bus Header</td>
<td>+12Vc, Comb cell battery Holder for CMOS and RTC</td>
</tr>
<tr>
<td>SPI Pin Header</td>
<td>Operating Temperature*</td>
</tr>
<tr>
<td>SIM Card slot</td>
<td>0°C to 60°C</td>
</tr>
<tr>
<td>4 x 7-segment LCD displays for POST codes</td>
<td>Power Supply</td>
</tr>
<tr>
<td>PS / 2 Mouse / keyboard pin header</td>
<td>+12Vc, Mini-ITX Standard ATX power connector</td>
</tr>
<tr>
<td>2 x tachometric FAN connectors</td>
<td>Operating Temperature*</td>
</tr>
<tr>
<td>Debug Port on mini-8 USB connector</td>
<td>-40°C to +85°C (Industrial temperature range)</td>
</tr>
<tr>
<td>Power, Reset, Lid and Sleep Buttons</td>
<td>Dimensions</td>
</tr>
<tr>
<td>345 x 170 mm (13.58” x 6.69”)</td>
<td>Dimensions</td>
</tr>
</tbody>
</table>

*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.

**Development kits for Qseven® and µQseven modules**
SMARC STANDARD ADVANTAGES

- Extreme low power design
- Low profile design
- Dedicated battery management signals
- Up to four display interfaces
- Dual Ethernet
- SMARC Compact 82x50 mm

COMPUTER-ON-MODULE APPROACH

- Design investment limited to the carrier board
- Consolidated Standard form factor
- Scalable and future-proof
- Long-term availability
- ARM and x86 cross-compatibility
- Multi-vendor solution
- Highly configurable
- Innovative and upgradable
- Accelerated time-to-market

SMARC SUPPORTED FEATURES

<table>
<thead>
<tr>
<th>System I/O interface</th>
<th># of interfaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express lanes</td>
<td>4</td>
</tr>
<tr>
<td>Serial ATA channels</td>
<td>1</td>
</tr>
<tr>
<td>USB 2.0 ports</td>
<td>6</td>
</tr>
<tr>
<td>USB 3.0 ports</td>
<td>2</td>
</tr>
<tr>
<td>LVDS channels embedded DisplayPort</td>
<td>2</td>
</tr>
<tr>
<td>DP++ / HDMI</td>
<td>1 dedicated DP++ / 1 shared DP++ / HDMI</td>
</tr>
<tr>
<td>Camera interfaces</td>
<td>2</td>
</tr>
<tr>
<td>High Definition Audio / I2S</td>
<td>1 I2S + 1 shared I2S / HD Audio</td>
</tr>
<tr>
<td>Ethernet 10/100/1000 Mbps</td>
<td>2</td>
</tr>
<tr>
<td>UARTs</td>
<td>2 x 4-Wire + 2 x 2-Wire</td>
</tr>
<tr>
<td>Secure Digital I/O 4-bit</td>
<td>1</td>
</tr>
<tr>
<td>PCI Bus</td>
<td>5</td>
</tr>
<tr>
<td>SPI Bus</td>
<td>2</td>
</tr>
<tr>
<td>CAN bus</td>
<td>2</td>
</tr>
<tr>
<td>Watchdog Timer</td>
<td>1</td>
</tr>
<tr>
<td>Boot selection signals</td>
<td>3</td>
</tr>
<tr>
<td>GPIOs</td>
<td>12 (some with alternate functions)</td>
</tr>
<tr>
<td>System and Power management signals</td>
<td>Reset out and Reset in Power button in Power source status Module power state status System management pins Battery and battery charger management pins Camera Power On control</td>
</tr>
</tbody>
</table>

SMARC Rel. 2.0 with the Intel® Atom™ X Series,
Intel® Celeron® J / N Series and Intel® Pentium®
N Series (formerly Apollo Lake) Processors

High performance, low power and feature-rich
SM-B69

Intel® Atom™ x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP
Intel® Atom™ x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP
Intel® Atom™ x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP
Intel® Pentium® N4200 Quad Core @1.1GHz (burst 2.4GHz), 2MB L2 Cache, 6W TDP
Intel® Celeron® N3350 Dual Core @1.0GHz (burst 2.4GHz), 2MB L2 Cache, 6W TDP
Intel® Celeron® J3455, Quad Core @ 1.5GHz (burst 2.3GHz), 2MB L2 Cache, 10W TDP
Intel® Celeron® J3355, Dual Core @ 2.0GHz (burst 2.5GHz), 2MB L2 Cache, 10W TDP

Max Cores: 4
Max Thread: 4
Memory: Dual Channel Soldered Down LPDDR4-2400 memory, up to 8GB

Graphics: Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units
Three Independent displays supported
- HW decoding of HEVC(H.265), H.264, MVC, VP8, VP9, MPEGL2, VC-1, WMV9, JPEG/MPEG formats
- HW encoding of HEVC(H.265), H.264, MVC, VP8, VP9 and JPEG/MPEG formats

Video Interfaces: eDP + 2 x MPO-LISI interfaces or Dual Channel 18/24bit LVDS interface
HDMI or DP++ interface
DP++ interface
2 x CSI interfaces

Video Resolution:
- DP++: Up to 4096 x 2160 @60Hz
- eDP: Up to 3840 x 2160 @60Hz
- HDMI: Up to 3840 x 2160 @60Hz
- MPO-LISI, LVDS: Up to 1920 x 1200 @ 60Hz
Optional eMMC 5.0 drive soldered on-board
1 x external S-ATA Gen3 Channels
SD interface

Mass Storage: Optional eMMC 5.0 drive soldered on-board

Networking: Up to 2 x Gigabit Ethernet interfaces
Intel® 8110 or I210 Controller (MAC + PHY)
USB: 6 x USB 2.0 Host Ports
2 x USB 3.0 Host Ports
PCI-e: 4 x PCI-e Root Ports
Audio: HD Audio interface
I2S Audio interface

Serial Ports: 2 x HS-UARTs
2 x UARTs

Operating System: Microsoft® Windows 10 Enterprise (64 bit)
Microsoft® Windows 10 IoT Core
Linux

Operating System: Yocto
Operating Temperature: 0°C + 60°C (Commercial version)
-40°C + 48°C (Industrial version)
Dimensions: 50 x 82 mm (1.97” x 3.23”)

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

SECO is one of the founding members of SGET
Flexible ARM + FPGA Heterogeneous Processing in a Standard Form Factor

**SMARC Rel. 2.0 with the Xilinx® Zynq® Ultrascale+™ MPSoC**

- **Processor**
  - Xilinx® Zynq® Ultrascale+™ ZU2CG, ZU2EG, ZU3CG, ZU3EG, ZU4CG, ZU4EG or ZU5CG MPSoCs:
    - Dual-core ARM® Cortex®-A53 MPCore Application Processing Unit + Dual-core ARM® Cortex®-R5 Real-Time Processing Unit
  - Xilinx® Zynq® Ultrascale+™ ZU5EG, ZU5EV or ZU6EV MPSoCs:
    - Quad-core ARM® Cortex®-A53 MPCore Application Processing Unit + Dual-core ARM® Cortex®-R5 Real-Time Processing Unit

- **Memory**
  - Soldered Down DDR4-3200 memory, 32-bit interface, up to 4GB

- **Power Supply**
  - Optional 5V
  - +3.3V_RTC

- **Operating System**
  - Linux
  - Android

- **Operating Temperature**
  - 0°C to +85°C (Commercial version)
  - -40°C to +85°C (Industrial version)

- **Dimensions**
  - 50 x 82 mm (1.97” x 3.23”)

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
Cross Platform Philosophy Development Kit for SMARC Rel. 2.0 compliant module

SMARC DEV KIT

FEATURES OF CSM-B79

Video Interfaces
- LVDS connector, interface shared with 2 x eDP/DSI connectors
- Backlight control + LCD selectable voltages dedicated connector
- DP++ dedicated connector
- HDMI connector (interface shared with USB 3.1 Type-C alternate mode port)
- 2x CSI Camera input interfaces

Mass Storage
- SATA M.7p connector with dedicated power connector, interface shared with M.2 Socket 2 2242 / 2260 Key B SSD slot
- microSD Card Slot

Networking
- 2 x RJ-45 Gigabit Ethernet connectors
- M.2 Socket1 2230 Key E Slot for WiFi Modules (interface shared with PCI-e x 4 slot)
- M.2 Socket2 2260 Key E Slot for WWAN Modem Modules (interface shared with PCI-e x 4 slot), connected to on-board microSIM slot

USB Ports
- 1 x USB 3.0 type A Socket
- 1 x USB 2.0 type A Socket
- 1 x USB OTG micro-AB Socket
- 1 x USB 3.1 Type-C Socket, with Alternate Mode and Power Delivery functionality

PCI-e
- PCI-e x4 slot, interface shared with 2 x PCI-e x1 Slot and M.2 Slots

Audio
- Mic In Jack, Line Out Jack
- Onboard I2S Audio Codec (TI TLV320AIC3204) + HD Audio Codec (Cirrus Logic CS4207)

Serial Ports
- 2 x CAN ports
- 2 x RS-232/RS-422/RS-485 configurable serial ports on internal pin header
- 2 x Serial ports (Tx/Rx signals only, TTL level) on feature pin header

Other Interfaces
- eSPI pin header + Flash Socket
- SPI pin header + Flash Socket
- I2C EEPROM Socket
- 4 x 7-segment LCD displays for POST codes
- Feature pin header with 8x GPIOs, I2C, SM Bus, Watchdog and Power Management Signals
- 4x GPIOs dedicated connector
- FAN connector
- RTC Coin battery holder
- Optional Debug USB port on mini-B Socket
- Boot selection switches
- JTAG connector

Power Supply
- 9-21V through dedicated Mini Fit Jr 2x2 power connector or USB Type-C connector
- 6-17V through 2/3/4 Cell Smart Battery Connector

Operating Temperature* -40°C + +85°C

Dimensions 345 x 170mm (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.
**Computer-on-Module Approach**

- Design investment limited to the carrier board
- Consolidated Standard form factor
- Scalable and future-proof
- Long-term availability
- ARM and x86 cross-compatibility
- Multi-vendor solution
- Highly configurable
- Innovative and upgradable
- Accelerated time-to-market

**Com Express™ Interfaces**

<table>
<thead>
<tr>
<th>Interface</th>
<th>Type 6 Min / Max</th>
<th>Type 7 Min / Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express</td>
<td>1 / 6</td>
<td>0 / 6</td>
</tr>
<tr>
<td>PCIe Express</td>
<td>0 / 10</td>
<td>0 / 10</td>
</tr>
<tr>
<td>PCIe Express</td>
<td>0 / 16</td>
<td>0 / 16</td>
</tr>
<tr>
<td>PCIe Express</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>PCIe Express</td>
<td>0 / 4</td>
<td>0 / 4</td>
</tr>
<tr>
<td>1Gb LAN Ports 0/1</td>
<td>1 / 1</td>
<td>1 / 1</td>
</tr>
<tr>
<td>NC-Sti</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>LVDS Channel A</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>LVDS Channel B</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>eDP on LVDS</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>VGL Port</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>0 / 2</td>
<td>0 / 2</td>
</tr>
<tr>
<td>CAN interface on</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>SATA Ports</td>
<td>1 / 4</td>
<td>0 / 4</td>
</tr>
<tr>
<td>HDA Digital</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>USB 2.0 Ports</td>
<td>4 / 8</td>
<td>4 / 8</td>
</tr>
<tr>
<td>USB0 Client</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>USB7 Client</td>
<td>0 / 1</td>
<td>0 / 1</td>
</tr>
<tr>
<td>USB 3.0 Ports</td>
<td>0 / 4</td>
<td>0 / 4</td>
</tr>
</tbody>
</table>

**Com Express™ Standard Advantages**

- For high-end design and markets
- Extremely feature-rich
- For high performance project requirements
- High graphics computing
- Basic: 125x95 mm Compact: 95x95 mm

**Computer-on-Module Rel.3.0 Basic Type 7 Module with the AMD EPYC™ Embedded 3000 Series of SoCs**

- AMD EPYC™ Embedded 3251. Eight Core Dual Thread @ 2.5GHz (3.1 Boost), 16MB L3 shared Cache, TDP 55W
- AMD EPYC™ Embedded 3210. Eight Core Single Thread @ 1.5GHz (3.1 Boost), 16MB L3 shared Cache, TDP 35W
- AMD EPYC™ Embedded 3151. Quad Core Dual Thread @ 2.7GHz (2.9 Boost), 8MB L3 shared Cache, TDP 35W
- AMD EPYC™ Embedded 3101. Quad Core Single Thread @ 1.7GHz (2.9 Boost), BMR L3 shared Cache, TDP 25W
- AMD EPYC™ Embedded 3255. Eight Core Dual Thread @ 2.5GHz (3.1 Boost), 32MB L3 shared Cache, TDP 55W, industrial grade

- 4x 10GbE Gigabit Ethernet interfaces (10GBASE-KR), managed by an Intel® I210 Gigabit Ethernet Controller
- 4x JTAG GBA (General Purpose I/O) 0 / 1 0 / 1
- 2x PCIe 3.1 Gen3 lanes
- 4x PCI-e 3.1 Gen3 lanes
- 2x legacy UARTs, 16C550 compatible
- SPI, SM Bus, LPC bus
- Optional TPM 2.0 module on-board
- AMD Secure Processor for Crypto Co-processing
- Hardware Validated Boot capabilities
- Secure Memory Encryption
- Secure Encrypted Virtualization

- Multi-Stage Watchdog Timer
- 2x I/O: Dedicated FAN management
- 4x GPIO, 4x GPO
- Advanced FAN management
- Hardware and temperature monitoring
- POST Code redirection
- User Data Storage
- Board statistics: up-time, boot counter, reset cause log
- Board statistics: up-time, boot counter, reset cause log
- Dedicated embedded BIOS based on AMI Aptio V
- AMD Secure Processor for Crypto Co-processing
- Power State Management
- Hardware Validated Boot capabilities
- Secure Memory Encryption
- Secure Encrypted Virtualization

- Intel® I210 Gigabit Ethernet Controller
- Intel® I210 Gigabit Ethernet Controller
- Intel® I210 Gigabit Ethernet Controller
- Intel® I210 Gigabit Ethernet Controller
- Intel® I210 Gigabit Ethernet Controller

**Dimensions**

- 120 x 95 mm (Com Express Basic Form factor, Type 7 pinout)

*Measured at any point of the standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
FEATURES OF CCOMe-C79

Mass Storage
2x S-ATA 7pM connectors
μSD Card slot (interface multiplexed with GPIO header)

Networking
1x GbEthernet RJ-45 connector
4x IOBase-KR interfaces on OCP Type-C connector
4x MDIO I2C interfaces on internal pin header
4x SPI interfaces on SMA RF connectors
4x USB 3.1 Host ports on Dual Type-A sockets

PCI-e
2x PCI-e x4 Slots
1x PCI-e x8 Slot
1x PCI-e x16 Slot

Serial Ports
2 x RS-232 ports on dedicated pin header (from module)

Other Interfaces
BMC connector with SM Bus, I2C, LPC, 1x USB 3.0, 1x PCI-e x1, NCSI signals
SPI Flash Socket
Button / LEDs front panel header
4-pin tachometric FAN connector
5x 7-segment LCD displays for POST codes

Power Supply
ATX 24 poles connector for carrier board working only
Auxiliary 12V connector for carrier board working only
12 VDC power in connector for COM Express module’s working
Cabled Coin-cell connector for RTC

Operating Temperature
0°C ~ +60°C (Commercial version)

Dimensions
305x244mm (ATX form factor, 12” x 9.6”)

*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 EXP T7 DEV KIT

Low power multi-core Intel® architecture for mobile applications

COMe-C55-CT6
## COM Express Type 6

### COMe-C08-BT6

**Processor**
- Intel® 8th generation Core™ / Xeon® (formerly Coffee Lake/H Cache) CPUs
  - Intel® Core™ i7-8850H, Quad Core @ 2.6GHz (4.5GHz Max 1 Core Turbo), 9MB Cache, 45W TDP, (32W cTDP), with HyperThreading
  - Intel® Core™ i5-8400H, Quad Core @ 2.8GHz (4.0GHz Max 1 Core Turbo), 6MB Cache, 45W TDP, (32W cTDP), with HyperThreading
  - Intel® Core™ i3-8100H, Quad Core @ 3.0GHz, 6MB Cache, 45W TDP (32W cTDP)
  - Intel® E-2176M, Six Core @ 2.7GHz (4.4GHz Max 1 Core Turbo), 12MB Cache, 45W TDP (35W cTDP), with HyperThreading

**Temperature**
- Operating Temperature: 0°C ÷ +60°C (Commercial version)
- Storage Temperature: -20°C ÷ +85°C

**Power**
- Supply Voltage: +12VDC ± 10% and +5VSB (optional)

**Power Supply**
- +12V: max 15A, +5V: max 5A

**Networking**
- Gigabit Ethernet interface

**Mass Storage**
- Two 2.5" SATA SSD/SATA III slots, supporting up to 2TB HDD/SSD

**Mass Storage Interface**
- SATA 6Gbps

**Memory**
- Two DDR4 SO-DIMM slots, supporting up to 32GB DDR4-2666 Memory

**Graphics**
- Intel® UHD Graphics 630, or AMD Radeon™ Vega 3 GPU with 3 Compute Units

**Video**
- Two HDMI ports
- One DVI port
- One DisplayPort (DP 1.3)
- One USB 3.0 port

**Audio**
- HD Audio interface

**Audio Interface**
- 16-bit, 48kHz

**USB**
- 4 x USB 3.0 Host ports
- 2 x USB 2.0 Host ports

**Serial Port**
- 2 x UARTs

**Network**
- Gigabit Ethernet interface

**Operating System**
- Windows 10 64-bit

**Dimensions**
- 125 x 95 mm (COM Express Compact Form factor, Type 6 pinout)

*Exceptional platform performance with up to six cores for more processing power*

## Low-end AMD Ryzen™ on COM Express™ Type 6 Compact

### COMe-C89-CT6

**Processor**
- AMD Ryzen™ Embedded R1606G with GPU AMD Radeon™ Vega 3, Dual Core Dual Thread @ 2.6GHz (3.5 Boost), TDP 12-25W

**Memory**
- Two DDR4 3200MT/s Slots, supporting up to 4GB memory

**Graphics**
- Vega 3 GPU with 3 Compute Units

**Video**
- Up to 3 x Digital Display Interfaces (DDIs), supporting DP 1.3, HDMI and DVI

**Audio**
- HD Audio interface

**Audio Interface**
- 16-bit, 48kHz

**USB**
- Up to 4 x USB 3.0 Host ports

**Serial Port**
- 2 x UARTs

**Network**
- Gigabit Ethernet interface

**Operating System**
- Windows 10 64-bit

**Temperature**
- 0°C ÷ +60°C (Commercial version)

**Dimensions**
- 95 x 95 mm (COM Express Compact Form factor, Type 6 pinout)

*Low-end AMD Ryzen™ on COM Express™ Type 6 Compact*

---

**Note:** The table and text provided are based on the information extracted from the document. Actual specifications and details may vary. Always consult the official documentation or manufacturer's website for the most accurate and up-to-date information.
## COM Express™ 3.0 with the AMD Ryzen™ Embedded V1000 processors

**COMe-B75-CT6**

- **Processor**: AMD Ryzen™ Embedded V1000 with AMD Radeon™ Vega 11 Graphics, Quad Core Dual Thread @ 3.55GHz (3.8 Boost), TDP 35-54W
- **Memory**: Up to two DDR4 2400 ECC and non-ECC Memory modules (up to 16GB @ 2400Mhz, up to 32GB @ 2400Mhz)
- **Graphics**: AMD Radeon Vega with up to 11 Compute Units
- **Video Interfaces**: 3 x Digital Display Interfaces (DDIs), supporting DP 1.3, DVI and HDMI 1.4a, eDP or Single/Dual-Channel 18/24-bit LVDS interface
- **Network**: Gigabit Ethernet interface
- **USB**: 4 x USB 3.0 Host ports, 8 x USB 2.0 Host ports
- **PCI-e**: Up to 4x PCI-e x1 Gen3 lanes + 2 x PCI-e x1 Gen2 ports
- **Audio**: HD Audio interface

### Specifications
- **Max Cores**: 4
- **Memory**: Up to 16GB @ 2400Mhz, up to 32GB @ 2400Mhz
- **Graphics**: 4 independent displays supported
- **USB**: 4 x USB 3.0 Host ports, 8 x USB 2.0 Host ports
- **Audio**: HD Audio interface
- **Network**: Gigabit Ethernet interface
- **Dimensions**: 95 x 95 mm (COM Express™ Compact Form factor, Type 6 pinout)

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

## Rugged solution for industrial environment

**COMe-C24-CT6**

- **Processor**: Intel® Atom™ x5-Z8500 Dual Core @ 1.2GHz (Burst 2.0GHz), 2MB L2 Cache, 6.5W TDP
- **Memory**: Up to two DDR3L 1600 ECC and non-ECC Memory, up to 6GB
- **Graphics**: Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units
- **Video Interfaces**: 2 x Digital Display Interfaces (DDIs), supporting DP 1.2, DVI and HDMI 1.4b, eDP 1.3 or Single/Dual-Channel 18/24-bit LVDS interface
- **Video Resolution**: Up to 1920 x 1200 @ 60Hz
- **Mass Storage**: Optional microSD Card Slot onboard
- **USB**: 4 x USB 3.0 Host ports, 8 x USB 2.0 Host ports
- **PCI-e**: Up to 5 x PCI-e x1 lanes
- **Audio**: HD Audio Interface

### Specifications
- **Max Cores**: 4
- **Memory**: Up to 8GB @ 1600Mhz
- **Graphics**: up to 2 x independent displays supported
- **USB**: 4 x USB 3.0 Host ports, 8 x USB 2.0 Host ports
- **PCI-e**: 4 x PCI-e x1 Gen3 lanes
- **Audio**: HD Audio Interface
- **Network**: Optional Gigabit Ethernet interface
- **Dimensions**: 95 x 95 mm (COM Express™ Compact Form factor, Type 6 pinout)

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/ or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
### COM Express™ Basic with Intel® 6th and 7th generation Core™ / Xeon® (formerly Skylake and Kaby Lake) CPUs

**COMe-B09-BT6**

**When high graphics and Hyper-threading matter**

<table>
<thead>
<tr>
<th>Processor</th>
<th>COM Express™ Compact Type 6 with the AMD Embedded 3rd gen R-Series SoC, G-Series SoC-I or G-Series SoC-J</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>AMD RX-4218D, Quad Core @ 2.1 GHz (3.4 GHz Max), cTDP 12-35W</td>
</tr>
<tr>
<td></td>
<td>AMD RX-418D, Quad Core @ 1.8 GHz (3.2 GHz Max), cTDP 12-35W</td>
</tr>
<tr>
<td></td>
<td>AMD RX-416D, Quad Core @ 1.65 GHz (3.0 GHz Max), cTDP 12-15W</td>
</tr>
<tr>
<td></td>
<td>AMD RX-415D, Quad Core @ 1.5 GHz (2.4 GHz Max), TDP 15W, Industrial Temperature range</td>
</tr>
<tr>
<td><strong>Max Cores</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>R-Series: Two 2 x DIMM slots supporting DDR4 ECC / non-ECC modules up to 3133MHz</td>
</tr>
<tr>
<td></td>
<td>G-Series SoC-I: Two 2 x DIMM slots supporting DDR4 ECC / non-ECC modules up to 1600MHz</td>
</tr>
<tr>
<td></td>
<td>G-Series SoC-J: One 2 x DIMM slot supporting DDR4 non-ECC modules up to 2133MHz</td>
</tr>
<tr>
<td><strong>Graphics</strong></td>
<td>AMD Radeon 3rd Generation Graphics Core Next (GCN)</td>
</tr>
<tr>
<td></td>
<td>AMD RX-416D - Radeon™ RX</td>
</tr>
<tr>
<td></td>
<td>AMD RX-415D - Radeon™ RX</td>
</tr>
<tr>
<td></td>
<td>AMD RX-414D - Radeon™ RX</td>
</tr>
<tr>
<td><strong>Video Interfaces</strong></td>
<td>Up to 3 x Digital Display Interfaces (DDIs), supporting eDP1.4, DP 1.2, HDMI and DVI-D 1.4a eDP or Single / Dual-Channel 18- / 24-bit LVDS Interface (excludes one DDI Port) Optional eDP or Single / Dual-Channel 18- / 24-bit LVDS Interface (excludes one DDI Port)</td>
</tr>
<tr>
<td><strong>Video Resolution</strong></td>
<td>LVDS, VGA, up to 1920 x 1200 @ 60Hz</td>
</tr>
<tr>
<td><strong>Networking</strong></td>
<td>Gigabit Ethernet interface Intel® i219-LM GbE Controller</td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>4 x USB 3.0 Host ports</td>
</tr>
<tr>
<td></td>
<td>8 x USB 2.0 Host ports</td>
</tr>
<tr>
<td><strong>PCI-e</strong></td>
<td>3 x PCI-e x 1 lanes</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>HD Audio Interface</td>
</tr>
<tr>
<td><strong>Serial Ports</strong></td>
<td>2 x UARTs</td>
</tr>
<tr>
<td><strong>Other Interfaces</strong></td>
<td>SPI, I2C, SMB Bus, LPC bus, Fan management</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>+12Vc ± 10% and +5Vc (optional)</td>
</tr>
<tr>
<td><strong>System</strong></td>
<td>Microsoft® Windows 7 (only for Skylake)</td>
</tr>
<tr>
<td></td>
<td>Microsoft® Windows 10</td>
</tr>
<tr>
<td><strong>Operating System</strong></td>
<td>Linux</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>0°C ~ +60°C (Commercial version)</td>
</tr>
<tr>
<td></td>
<td>0°C ~ +60°C (Industrial version)</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>90 x 56 mm (Compact Express™ Compact Form factor, Type 6 pinout)</td>
</tr>
</tbody>
</table>
**COM Express™ Compact with Intel® Atom™ E3800 and Celeron™ families (formerly Bay Trail)**

**Versatile and rugged**

**COMe-A41-CT6**

- **Processor**: Intel® Atom™ E3845, Quad Core @1.91GHz, 2MB Cache, 10W TOP
- **Max Cores**: 4
- **Memory**: 4GB single-channel DDR3L 1600 MHz
- **Graphics**: Integrated Intel® HD Graphics 4000 series controller
- **Video Resolution**: up to 1920 x 1200 @ 60Hz
- **Network**: Gigabit Ethernet interface
- **USB**: 7 x USB 2.0 Host ports, 4 x USB 3.0 Host ports
- **PCI-e**: 2 x PCI-e x1 lanes (configurable as 1 PCI-e x4 + 3 PCI-e x1)
- **Audio**: HD Audio, HD Audio interface
- **Dimensions**: 95 x 95 mm

**High performance for any design in a scalable form factor**

**COMe-953-BT6**

- **Processor**: Intel® Core™ i7-4700EQ, Dual Core @2.4GHz, 6MB Cache, 47W TDP
- **Max Cores**: 4
- **Chipset**: Intel® QM87 chipset
- **Memory**: 4GB single-channel DDR3L 1600 MHz
- **Graphics**: Integrated Intel® HD Graphics 4000 series controller
- **Video Resolution**: up to 3840 x 2160 @ 24Hz / 2560x1600 @ 60Hz
- **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, HD Audio interface
- **Dimensions**: 125 x 95 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
**Carrier Board**

Carrier Board for COM Express™ Type 6 Modules on 3.5” form factor

**Development Kit**

Cross Platform Development Kit compatible with both x86 and ARM COM Express™ Type 6 modules

---

**Most compact, I/O-rich COM Express™ Type 6 carrier board**

**CCOm-C30**

Cross-compatible platform with x86 and ARM solutions

---

**Platform independent kit for fast Time-to-market**

**COM EXP T6 DEV KIT**

Cross-compatible platform with x86 and ARM solutions

---

**FEATURES OF CCOMe-C96**

- **Video Interfaces**
  - 1 x DP++ connector
  - 2 x miniDP++ connectors
  - LVDS 24-bit Single/Dual Channel
  - Backlight control + LCD selectable voltages dedicated connector
  - LVDS External EDID flash socket
  - eDP 4-lanes 40 poles VESA connector
  - S-ATA 7p M connector + 4 pins power connector
  - M.2 Socket 2 2242 / 2260 Key B slot for SSD
  - M.2 Socket 3 2280 Key M slot for PCI-e x4 3SDs
  - µSD Card slot (interface multiplexed with GPIO10 header)

- **Mass Storage**
  - Dual SJ-45 connector (1 port managed by COM Express Gigabit Ethernet interface, 1 port managed by Carrier board’s Intel® I21x GbEthernet controller)
  - M.2 Socket 2 2242 / 3042 Key B slot for WWAN modules (modem)
  - M.2 Socket 1 2230 Key E slot for WiFi / BT modules

- **Networking**
  - On-board HD Audio Codec (Realtek ALC262)
  - 2 x RS-232 / RS-422 / RS-485 ports on internal pin header (from carrier board’s SuperI/O)
  - 2 x RS-232 ports on feature pin header (from module)
  - 4 x GPI + 4 x GPO pin header (interface multiplexed with µSD slot)
  - Button / LEDs front panel header
  - I2C + SM Bus on feature Pin header
  - LPC internal header

- **USB**
  - 3 x USB 3.0 Host ports on Type-A sockets
  - 2 x USB 2.0 Host ports on Type-A sockets
  - 1 x USB 2.0 Host port on internal pin header

- **Audio**
  - On-board HD Audio Codec (Realtek ALC262)
  - Mic In + Line Out internal pin header

- **Serial Ports**
  - 4 x GPI + 4 x GPO pin header (interface multiplexed with µSD slot)
  - 4 pin biphase FAN connector
  - I2C + SM Bus on feature Pin header
  - LPC internal header

- **Other Interfaces**
  - microSIM slot for M.2 modem
  - Button / LEDs front panel header
  - I2C + SM Bus on feature Pin header
  - LPC internal header

- **Power Supply**
  - Cabled Coin-cell connector for RTC

- **Operating Temperature**
  - 0°C to +60°C (Commercial version)

- **Dimensions**
  - 146x102mm (3.5” form factor, 5.75” x 4.02”)

---

**FEATURES OF CCOMe-C96**

- **Video Interfaces**
  - 3 x DP++ connector
  - VGA connector
  - LVDS 24-bit Single/Dual Channel
  - eDP 4-lanes 40 poles VESA connector
  - Backlight control + LCD selectable voltages dedicated connector
  - LVDS External EDID flash socket
  - S-ATA 7p M connectors
  - µSD Card slot (interface multiplexed with GPIO10 header)

- **Mass Storage**
  - 4x S-ATA 7p M connectors
  - 4x USB 3.1 Host ports on Type-A sockets
  - 4 x USB 2.0 Host ports on Quad Type-A sockets
  - 2x PCI-e x4 Slots
  - 1x PCI-e x16 Slot

- **Networking**
  - On-board HD Audio Codec (Realtek ALC262)
  - Mic In + Line Out internal pin header

- **Serial Ports**
  - 2 x RS-232 / RS-422 / RS-485 ports on internal pin header (from carrier board’s LPC Dual UART controller)
  - 2 x RS-232 ports on dedicated pin header (from module)
  - 4 x GPI + 4 x GPO pin header (interface multiplexed with µSD slot)
  - SPI Flash Socket
  - I2C Flash Socket
  - SM Bus Smart Battery Connector
  - 4 x 7-segment LCD displays for POST codes

- **Power Supply**
  - Cabled Coin-cell connector for RTC

- **Operating Temperature**
  - 0°C to +60°C (Commercial version)

- **Dimensions**
  - 305x244mm (ATXform factor, 12” x 9.6”)

---

*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.*
**ETX® STANDARD ADVANTAGES**

- COMPTER-ON-MODULE APPROACH
  - Design investment limited to the carrier board
  - Consolidated Standard form factor
  - Scalable and future-proof
  - Long-term availability
  - ARM and x86 cross-compatibility
  - Multi-vendor solution
  - Highly configurable
  - Innovative and upgradable
  - Accelerated time-to-market

---

**Update your legacy design**

**ETX-A61**

<table>
<thead>
<tr>
<th>Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Atom™ E3845, Quad Core 1.91GHz, 2MB Cache, 6W TDP</td>
</tr>
<tr>
<td>Intel® Atom™ E3827, Dual Core 1.75GHz, 1MB Cache, 8W TDP</td>
</tr>
<tr>
<td>Intel® Atom™ E3826, Dual Core 1.46GHz, 1MB Cache, 7W TDP</td>
</tr>
<tr>
<td>Intel® Atom™ E3825, Dual Core 1.33GHz, 1MB Cache, 6W TDP</td>
</tr>
<tr>
<td>Intel® Atom™ E3815, Single Core 1.46GHz, 512KB Cache, 5W TDP</td>
</tr>
<tr>
<td>Intel® Celeron® J1900, Quad Core 2.0GHz, 2MB Cache, 10W TDP</td>
</tr>
<tr>
<td>Intel® Celeron® N2930, Quad Core 1.83GHz, 2MB Cache, 7.5W TDP</td>
</tr>
<tr>
<td>Intel® Celeron® N2807, Dual Core 1.58GHz, 1MB Cache, 4.3W TDP</td>
</tr>
</tbody>
</table>

**Max Cores**

- 4

**Max Thread**

- 4

**Memory**

<table>
<thead>
<tr>
<th>DDR3L memory soldered on-board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Atom™ E3845, E3827, E3826, E3825, E3815: up to 8GB Dual-Channel DDR3L 1333MHz</td>
</tr>
<tr>
<td>Intel® Atom™ N2807, N2930: up to 4GB Single-Channel DDR3L 1333MHz</td>
</tr>
<tr>
<td>Intel® Celeron® J1900, N2930, N2807: up to 4GB Single-Channel DDR3L 1066MHz</td>
</tr>
</tbody>
</table>

**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**

- 18/24 bit single / dual channel LVDS interface (VESA and JEIDA color mapping compatible)

**Video**

- CRT Interface: Up to 2560 x 1600 @ 60Hz
- LVDS interface: Up to 1920 x 1200 @ 60Hz

**Mass Storage**

<table>
<thead>
<tr>
<th>Optional eMMC drive soldered on-board</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x external SATA or 2 x 25/512 or 1 x SATA + 1 x SATA channels (factory options)</td>
</tr>
<tr>
<td>μSD Card Slot</td>
</tr>
</tbody>
</table>

**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)
- PCI Bus rel. 2.3 compliant
- ISA Bus
- LPT interface shared with Floppy Drive interface
- PS / 2 mouse and keyboard interface
- USB Bus
- SM Bus
- Watch Dog timer

**Power Supply**

- +5VDC ± 5% and + 5VSB (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)

**Operating Temperature**

- 0°C ÷ +60°C (Commercial version)

**Dimensions**

| 114 x 95 mm (4.49" x 3.74") |

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
### 3.5" SBC with AMD Ryzen™
Embedded R1000 / V1000 family of SoCs

#### Full connectivity on powerful AMD Ryzen™ platform

**SBC-C90**

---

### Advantages

- **Reduced time-to-market**
- **Very low engineering design investment**
- **Off-the-shelf solutions**
- **Best price point for low volume projects**

#### Processor

- AMD Ryzen™ Embedded V1000 family SoCs:
  - AMD Ryzen™ Embedded V1087B with AMD Radeon™ Vega 11 Graphics, Quad Core Dual Thread @ 3.35GHz (3.8 Boost), TDP 35-54W
  - AMD Ryzen™ Embedded V1756B with AMD Radeon™ Vega 8 Graphics, Quad Core Dual Thread @ 3.25GHz (3.6 Boost), TDP 35-54W
  - AMD Ryzen™ Embedded V1605B with AMD Radeon™ Vega 8, Optimal TDP 54W, TDP 12-25W
  - AMD Ryzen™ Embedded V1202B with AMD Radeon™ Vega 3, Dual Core Dual Thread @ 2.3GHz (3.2 Boost), TDP 12-25W
- AMD Ryzen™ Embedded R1000 family SoCs:
  - AMD Ryzen™ Embedded R1606G with AMD Radeon™ Vega 3, Dual Core Dual Thread @ 2.6GHz (3.5 Boost), TDP 12-25W

### Memory

- 2x DDR4 ECC and non-ECC SODIMM Slots
- Support DDR4-2400 memories (DDR4-3200 with V1807B and V1756B), up to 32GB total

### Graphics

- GPU AMD Radeon™ VEGA with up to 11 Compute Units
- DirectX® 12 supported
- H.265 (10-bit) decode and 8-bit video encode
- VP9 decode
- 4 independent displays supported (3 with R1000 SoCs)

### Video Interfaces

- 4x DP++ connectors (only 3 working with R1000 SoCs)
- Up to 4096 x 2160
- eDP:
  - Up to 3840 x 2160 (4K)
  - LDVs: Up to 1920 x 1200

### Mass Storage

- M.2 NVMe slot (Socket 2 Key M Type 2280 or 2260), PCI-e x4 interface microSD card slot (combo with miniSIM slot)
- 2x SATA 7p connectors w/ 1x power connector

### Networking

- M.2 WWAN slot (Socket 2 Key B Type 2242/3042) for Modems
- M.2 Connectivity Slot (Socket 1 Key E Type 2230)
- 2x USB 3.0 Host ports on internal pin header
- 1x USB 3.0 (V1000 SoCs) / USB 2.0 (R1000 SoCs) Host port on WWAN M.2 slot
- 1x USB 2.0 Host port on M.2 Connectivity Slot

### USB

- HD Audio codec
  - Line Out + Microphone + SPDIF Out interfaces on internal pin header
- PCI-e
  - 1 x PCIe x4 port on M.2 NVMe Slot
  - 1 x PCIe x1 port on M.2 WWAN Slot
  - 1 x PCIe x1 port on M.2 Connectivity Slot
- Serial Ports
  - 2 x RS-232/422/485 UARTs, on internal Pin Header
  - miniSIM slot for M.2 modems (combo with microSD slot)
- Fan connector
- Switch / LED Front Header connector

### Other Interfaces

- 2x I2C on internal pin header
- Optional TPM 1.2 or 2.0 onboard
- +12Vc +24Vc
- Power Supply
  - RTC battery

### Operating System

- Microsoft® Windows 10 (64-bit)
- Linux Ubuntu

### Operating Temperature

- 0°C to +60°C (Commercial version)
- -40°C to +85°C (Industrial version, only for future SoCs in extended temperature range and with TDP ≤25W)

### Dimensions

- 146 x 102 mm (3.5” form factor)

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

**Sampling**

**Production**

Available in Industrial Temperature Range

---

**SBC-C43**

NXP i.MX 8 Family:
- i.MX 8QuadMax: 2x ARM Cortex®-A72 + 4x ARM® Cortex®-A53 + 2x Cortex®-M4F
- i.MX 8QuadPlus: 1x ARM Cortex®-A72 + 4x ARM® Cortex®-A53 + 2x Cortex®-M4F
- i.MX 8Quad: 4x ARM Cortex®-A53 + 2x Cortex®-M4F

**Max Cores:**
- 8

**Memory**
- Soldered down LPDDR4 memory, 64-bit interface, 1600MHz
- Base configuration 2GB, up-scaleable to 4GB, 6GB, 8GB

**Graphics**
- 2x Graphics accelerators Vivante GC7000 / XVSX or GC7000 Li XVSX (QuadPlus and Quad)
- 4x embedded VPU, supporting H.265 (4K30) and H.264 (1080p60) decoding and H.264 (1080p30) encoding
- Supports 4 independent video outputs (total combined resolution 4K)

**Video Interfaces**
- Outputs: HDMI 2.0a Tx interface
- Optional eDP 1.4 interface
- Single/Dual Channel 18-24-bit LVDS interface

**Video Resolution**
- eMMC 5.1 Drive soldered on-board, up to 32GB
- 1x SATA interface available on M.2 Socket 2 Key B Slot (interface shared with PCI-e x1)
- microSD Card Slot
- 4MB QuadSPI Flash NAND (boot device only)

**Networking**
- 2x Gigabit Ethernet interfaces
- Combo WiFi 802.11 a/b/g/n + BT LE 4.2 module with ceramic SMT antennas on-board
- M.2 Socket 2 Key B Slot for M.2 MODems
- M.2 Socket 1 Key E Slot for WiFi + BT external modules
- 1x USB 3.0 host port on external Type-A socket
- 2x USB 2.0 ports available on M.2 Key B and Key E slots
- 2x PCI-e x1 ports, available on M.2 Socket 1 Key E and on M.2 Socket 2 Key B (pin shared with SATA interface slot)
- 1x UART-RS-232 level
- 1x UART-RS-485/RS-422 configurable
- 1x UART TTL level
- 3x CAN interfaces
- 4x Analog Inputs
- 6x GPIOs
- SPI interface
- I2C interface
- Embedded additional RTC circuitry for lowest power consumption
- SIM dedicated slot + programmable eSIM on-board

**Power Supply**
- +12V: ± 10%

**Operating System**
- Wind River Linux
- Android

**Operating Temperature**
- -20°C ÷ +85°C (Commercial version)
- -40°C ÷ +85°C (Industrial version, only boards without optional WiFi module)

**Dimensions**
- 146 x 102 mm (5.75" x 4.02")

---

**A new generation of cost effective solutions for multimedia and industrial IoT applications**

**SBC-C20**

NXP i.MX 8M Family, based on ARM® Cortex® A53 MPCore + Cortex-M4 core platform:
- i.MX 8M Quad: Quad core up to 1.5GHz
- i.MX 8M QuadLite: Quad core up to 1.1 GHz per core
- i.MX 8M Dual: Dual core up to 1.5 GHz per core

**Memory**
- Soldered down DDR3L memory, up to 2GB

**Graphics**
- Vivante GC7000Lite GPU, supporting OpenGL ES 1.1 / 2.0 / 3.0 / 3.1, Open CL 1.2 and Vulkan
- Optional WiFi ac/a/b/g/n + BT 5 module with onboard U.FL antenna connectors
- Gigabit Ethernet port
- M.2 Socket 2 2260 / 3042 Key B slot for WWAN modules (modem)
- USB Device on USB 2.0 micro-AB connector (interface shared with USB 3.0 port)
- USB 3.0 Type-A connector (interface shared with USB 2.0 micro-AB)
- USB 2.0 Dual Type-A connector
- Optional USB 2.0 internal T/S connector (excludes one USB 2.0 Type-A interface)

**Audio**
- I2S Audio Codec
- Microphone + Headphone interfaces on internal pin headers
- Optional 10W for channel amplified Speaker connector
- Optional WiFi ac/a/b/g/n + BT 5 module with onboard U.FL antenna connectors

**Serial Ports**
- RS-232 Serial port connector
- Debug UART on internal pin header
- CAN Port
- UART (RS-232 level)
- 1x UART-RS-485/RS-422 configurable
- 1x UART TTL level
- 3x CAN interfaces
- 4x Analog Inputs
- 6x GPIOs
- SPI interface
- I2C interface
- I2C Touch Screen dedicated connector
- SPI interface
- SPI Connector

**Power Supply**
- 12V
- Coin cell battery for RTC

**Operating System**
- Linux
- Android

**Operating Temperature**
- 0°C ÷ +60°C (Commercial version)
- -40°C ÷ +85°C (Industrial version, only boards without optional WiFi module)

**Dimensions**
- 101.6 x 147 mm (4" x 5.78")

---

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
DEVELOPMENT SAMPLING PRODUCTION

Available in Industrial Temperature Range

Processor
SBC-C41-pITX
Intel® Atom™ x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP

SBC-C57
NXP i.MX 8X family SoCs: Dual or Quad ARM Cortex®-A55 Cores + 1x Cortex® M4F core for real-time processing
- NXP i.MX8 QuadXplus, 4x ARM Cortex®-A55 Cores + 1x Cortex® M4F core for real-time processing
- NXP i.MX8 DualXplus, 2x ARM Cortex®-A55 Cores + 1x Cortex® M4F core for real-time processing

Max Cores
4+1

Memory
Soldered down LPDDR4 memory @ 1200MHz, 32-bit interface, up to 4GB

Networking
Embedded GC7000Lite GPU
Supports OpenGL 3.0, 2.1, OpenGL ES 3.1, OpenGL 1.2 Full Profile and 1.1, OpenVG 1.1, and Vulkan
Embedded VPU, supports HW decoding of HEVC/H.265, AVC/H.264, MPEG-2, VC-1, RV10, VP8, H.263 and MPEG4.2t, HW encoding of AV/H.264
2 independent displays supported

Video Interfaces
Factory options:
- xDP 4-lane interface + UDS single Channel 18-24-bit interface
- UDS Dual Channel / 2x UDS Single Channel interface

Video Resolution
Up to 1080p60

Mass Storage
Soldered onboard eMMC 5.1 Drive, up to 64GB

Audio
I2S Audio codec
Mic In + Hi-Out on TRRS combo connector

Other Interfaces
Optional mini PCI-e Slot

Dimensions
146 x 102 mm (3.5” form factor)

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
SBC-C66

High-performing, flexible solution for intelligence at the edge

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® 8th generation Core™ / Xeon® / Pentium® / Celeron® CPU(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Intel® Core™ i7-8850H, Six Core @2.6GHz (1.8GHz Max 1 Core Turbo), 9MB Cache, 45W TDP (35W cTDP), with HyperThreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Core™ i5-8400H, Quad Core @2.2GHz (4.2GHz Max 1 Core Turbo), 8MB Cache, 45W TDP (35W cTDP), with HyperThreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Core™ i3-8100H, Quad Core @3.9GHz, 6MB Cache, 45W TDP (35W cTDP)</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2176M, Six Core @ 2.7GHz (4.4GHz Max 1 Core Turbo), 12MB Cache, 45W TDP (35W cTDP), with HyperThreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2245M, Four Core @3.7GHz (3.8GHz Max 1 Core Turbo), 8MB Cache, 45W TDP (35W cTDP), with HyperThreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2274M, Four Core @4.1GHz (4.2GHz Max 1 Core Turbo), 8MB Cache, 45W TDP (35W cTDP), with HyperThreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2280M, Six Core @ 4.4GHz (4.5GHz Max 1 Core Turbo), 9MB Cache, 25W TDP with Hyperthreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2295M, Six Core @ 4.6GHz (4.7GHz Max 1 Core Turbo), 9MB Cache, 25W TDP with Hyperthreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2319M, Four Core @4.2GHz (4.3GHz Max 1 Core Turbo), 8MB Cache, 40W TDP with Hyperthreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2338M, Six Core @ 4.3GHz (4.4GHz Max 1 Core Turbo), 9MB Cache, 35W TDP with Hyperthreading</td>
</tr>
<tr>
<td></td>
<td>• Intel® Xeon® E-2348M, Eight Core @ 4.4GHz (4.5GHz Max 1 Core Turbo), 12MB Cache, 35W TDP with Hyperthreading</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>VIN Range: +12V/+24V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Optional Ultra-low Power RTC</td>
</tr>
<tr>
<td></td>
<td>• Optional on-board LTE Modem</td>
</tr>
<tr>
<td></td>
<td>• Soldered on-board M.2 1216 802.11ac/11ax Dual Band Wi-Fi 6 (802.11ax) + Bluetooth 5.1 module</td>
</tr>
<tr>
<td></td>
<td>• Optional on-board M.2 1216 802.11a/b/g/n/ac + BT 5.0 module</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio</th>
<th>I2C Flash</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Line Out, Other Interconnects, HD Audio codec on-board</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>Serial Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x Debug UARTs</td>
<td>2x USB 2.0 ports on Dual USB-A socket</td>
</tr>
<tr>
<td>2x MIPI-CSI Camera connector, 4-lanes CSI input</td>
<td>1x USB 2.0 Host port on internal pin header</td>
</tr>
<tr>
<td>2x multistandard RS-232/422/485 serial ports on internal pin header</td>
<td>Up to 2x SATA M.2 with SSD module</td>
</tr>
</tbody>
</table>

**Dimensions**

| 310x170 mm | *Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated. |
### DEVELOPMENT SAMPLING PRODUCTION

<table>
<thead>
<tr>
<th>Processor</th>
<th>NXP i.MX 6SoloX, Single core Cortex®-A9 @ 1GHz + Cortex®-M4 core @ 227MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>32-bit DDR3 memory soldered onboard, up to 1GB</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Graphics Vivante GC400T, 2D and 3D HW accelerator</td>
</tr>
<tr>
<td>Video</td>
<td>Optional Single Channel 18/24-bit LVDS connector w/ Touch Screen</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>8GB eMMC drive on-board</td>
</tr>
<tr>
<td>Network</td>
<td>1MB SPI Flash</td>
</tr>
<tr>
<td>USB</td>
<td>1 x 24-bit OTG on micro-AB connector</td>
</tr>
<tr>
<td>Audio</td>
<td>On-board buzzer</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>All available on expansion connector</td>
</tr>
<tr>
<td>Interfaces</td>
<td>M.2 Socket 1 Key E 2230 (USB + PCIe x1 interfaces) Slot M.2 Socket 2 Key B 2242 (USB interface) Slot microSIM slot or electronic SIM soldered on-board for the optional modem and/or the M.2 Key B Slot 3x Multicore signalling LEDs Reset Button Expansion PCB terminal block with:</td>
</tr>
<tr>
<td>Power Supply</td>
<td>DC power jack and 2-ports PCB terminal block for voltage supply</td>
</tr>
<tr>
<td>Operating System</td>
<td>Wind River Linux</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to +60°C (Commercial version)</td>
</tr>
<tr>
<td>Optional accessories</td>
<td>M.2 2230 Z-Wave module with on-board antenna</td>
</tr>
<tr>
<td>Dimensions</td>
<td>153 x 89.5 mm (6” x 3.5”)</td>
</tr>
</tbody>
</table>

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

---

### DEVELOPMENT SAMPLING PRODUCTION

<table>
<thead>
<tr>
<th>Processor</th>
<th>NXP i.MX 6SoloX, Single core Cortex®-A9 @ 1GHz + Cortex®-M4 core @ 227MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Cores</td>
<td>1 + 1</td>
</tr>
<tr>
<td>Memory</td>
<td>Soldered-on-board DDR3L memory, 32-bit interface</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Graphics Vivante GC400T, 2D and 3D HW accelerator</td>
</tr>
<tr>
<td>Video</td>
<td>Optional Single Channel 18/24-bit LVDS connector w/ Touch Screen</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>8GB eMMC drive on-board</td>
</tr>
<tr>
<td>Network</td>
<td>Up to 2x FastEthernet RJ-45 ports Optional Single Band or Dual Band</td>
</tr>
<tr>
<td>USB</td>
<td>1 x USB 2.0 OTG port</td>
</tr>
<tr>
<td>Audio</td>
<td>i2S Audio interface on programmable pin header</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>3 x serial ports (2x RS-232 +1xRS-485 interface)</td>
</tr>
<tr>
<td>Interfaces</td>
<td>SPI interface (I2C and/or UART)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>+12V core</td>
</tr>
<tr>
<td>Operating System</td>
<td>Linux</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to +60°C (Commercial version)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>153 x 89.5 mm (6” x 3.5”)</td>
</tr>
</tbody>
</table>

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
**Flexible, Open-source, Industrial SBC**

**SBC-A62-J**

- Processor: SBC-A62-J-SOLO: Single Core (i.MX6S) @1GHz; SBC-A62-J-LITE: Dual Core Lite (i.MX6SL) @1GHz; SBC-A62-J-PLUS: Dual Core Plus (i.MX6QP) @1GHz; SBC-A62-J-QUAD: Quad Core (i.MX6QX) @1GHz
- Max Cores: 4
- Memory: Soldered on-board DDR3L memory**
- Graphics: Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES2.0 3D; OpenVG™ accelerator (only SBC-A62-J-PLUS and SBC-A62-J-QUAD)
- Interfaces: Video: 1 x Dual Channel or 2 x Single Channel 18 / 34 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**
- 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
- Audio: Optional HD Audio Codec Cirrus Logic CS4207
- Other Interfaces: Dedicated connector (I2C, GPIO signals) for external Touch Screen controller, MIPI-DSI Camera connector, Configurable* expansion connector with: Up to 28 GPIO - SPI interface - SPI/I2C interface - CAN interface (TTL level) - SDIO interface - 3 x PWM - I2C - UARTs
- Power Supply: 12Vdc ± 5% RTC Battery with lead cable and connector
- Operating System: Free Android and Linux community BSP available at UDOO.org SECO Android (under development) and Linux BSP / WEC7 on request. Please contact us Yocto Guideline valid for SECO BSP Linux
- Operating Temperature: 0°C to +40°C (Commercial temp.)
- Dimensions: 110 x 86.5 mm (4.5“ x 3.7“)

---

**Limitless Embedded applications**

**SBC-A44-piTX**

- Processor: Intel® Atom™ E3845: Dual Core @1.91GHz, 1MB Cache, 10W TDP; Intel® Atom™ E3827: Dual Core @1.75GHz, 1MB Cache, 7W 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 (not for E3805)
- Video Interfaces: HDMI connector
- Video Resolution: HDMI: resolution up to 1080p @ 60Hz
- Mass Storage: 1 x standard SATA connector, mini mSATA interface on miniCard slot (shared with miniPCI-e)
- Networking: Dual Gigabit Ethernet connector
- USB: 2 x USB 3.0 Hot ports on Dual Type-A socket; 2 x USB 2.0 Hot ports on internal pin header; 1 x USB 2.0 Hot port on miniPCI-e slot
- Audio: Optional HD Audio Codec Cirrus Logic CS4207
- Serial Ports: 2 x optional RS-232 / RS-422 / RS-485 Serial ports on internal pin header
- Operating System: Free Android and Linux community BSP available at UDOO.org SECO Android (under development) and Linux BSP / WEC7 on request. Please contact us Yocto Guideline valid for SECO BSP Linux
- Operating Temperature: 0°C to +60°C (Commercial temp.)
- Dimensions: 72 x 100 mm (2.83“ x 3.93“)

---

*Please note that some of these interfaces are factory options, other configurations are made via SW.
**Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
*** For additional configurability please contact us.
**SATA SSD and WWAN functionalities share the same slot and are therefore mutually exclusive.**

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

**SATA SSD and WWAN functionalities share the same slot and are therefore mutually exclusive.**

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
### SYS-A62-10

**Flexible, Open-source, Industrial system**

#### Key Features
- **Processor**: Multicore NXP i.MX 6 processor family
  - SYS-A62-10/SOLO: i.MX6S Solo, 1 x ARM Cortex-A9 @1 GHz Core
  - SYS-A62-10/LITE: i.MX6DL Dual Lite, 2 x ARM Cortex-A9 @1 GHz Cores
  - SYS-A62-10/QUAD: i.MX6Q Quad, 4 x ARM Cortex-A9 @1 GHz Cores
- **Memory**:
  - SYS-A62-10/SOLO: 512MB 32-bit DDR3L soldered memory
  - SYS-A62-10/LITE: 1GB 64-bit DDR3L soldered memory
  - SYS-A62-10/QUAD: 1GB 64-bit DDR3L soldered memory
- **Embedded Graphics**:
  - 2D, OpenGL® ES2.0 3D HW accelerator
  - OpenVG™ accelerator (SYS-A62/10/QUAD only)
- **Video Section**:
  - 10.1” LVDS display, resolution 1280 x 800, 30K hours life
  - P-Cap (Projected Capacitive touch screen), with 2mm glass cover
  - Glass Hardness IK08, Surface Hardness 8H (450g)
- **Mass Storage**:
  - On-board 4GB eMMC drive
  - microSD Card Slot
- **Networking**:
  - Gigabit Ethernet connector
  - Optional WiFi pluggable module
- **USB**:
  - 2 x USB 2.0 Type-A ports and 1 x USB 2.0 internal connector
  - USB micro-b Client port
- **Audio**:
  - SYS-A62-10/SOLO: Realtek ALC655 AC’97 Audio Codec
- **Serial Ports**:
  - Dedicated Serial ports:
    - SYS-A62-10/SOLO: 2 x RS-232 ports
    - SYS-A62-10/LITE: 2 x RS-232 ports, 1 x CAN port
    - SYS-A62-10/QUAD: 2 x RS-232 ports, 1 x RS-485 port, 1 x CAN port
  - Other serial ports can be realised on expansion connector (see “Other interfaces”)
- **Other Interfaces**:
  - MIPI-CSI Camera connector
  - Programmable expansion connector with:
    - SYS-A62-10/SOLO: up to 22 GPIOs, 2 x TTL CAN ports, 1 x UART TTL, 3 x PWM, 2 x I2C, SD, SPI or S/PDIF interfaces
    - SYS-A62-10/LITE: up to 20 GPIOs, 1 x TTL CAN port, 1 x UART TTL, 3 x PWM, 2 x I2C, SD, SPI or S/PDIF interfaces
    - SYS-A62-10/QUAD: up to 18 GPIOs, 1 x TTL CAN port, 3 x PWM, 2 x I2C, SD, SPI or S/PDIF interfaces
- **Power Supply**:
  - SYS-A62-10/SOLO and SYS-A62-10/LITE: internal i.MX6 RTC, require external battery for time/data retention
  - SYS-A62-10/QUAD: low power RTC with on-board battery
- **Operating System**:
  - Linux
  - Yocto
  - Windows® Embedded Compact 7
- **Operating Temperature**:
  - 0°C ÷ 50°C
- **Dimensions**:
  - 269.60 x 189.20 x 17.17 mm

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
### SYS-B08-7

**Smart, compact, industrial 7” touch system built for IoT**

**Processor**
- NXP i.MX 6SoloX Processor, Single core Cortex-A9 @ 1GHz + Cortex-M4 core @ 227MHz

**Max Cores**
- 1 + 1

**Memory**
- Soldered on-board DDR3L, memory, 32-bit interface
- **SYS-B08-ASIGCD**: 512MB
- **SYS-B08-FULLD**: 1GB

**Graphics**
- Integrated Graphics Vivante GC400T, 2D and 3D HW accelerator
- OpenGL ES 2.0, OpenGL ES 1.1, OpenGL 1.1 supported

**Video Interfaces**
- Single Channel 1B/24 -bit UVDS connector + Touch Screen (12C signals)
- 24-bit Parallel RGB Connector

**Video Resolution**
- UVDS: up to 1366x768 @60Hz, 24bpp
- RGB: up to 1920x1080p @60Hz, 24bpp

**Mass Storage**
- 16MB NOR Quad-SPI Flash soldered onboard and SD Card slot

**Networking**
- **SYS-B08-ASIGCD**: 1x Fast Ethernet RJ-45 connector
- **SYS-B08-FULLD**: 2x Fast Ethernet RJ-45 connector + WiFi (802.11 b/g/n) + BT LE combo module + antenna onboard

**USB**
- 1 x USB 2.0 OTG port
- 3 x USB 2.0 Host port on standard Type-A socket
- 1 x USB 2.0 Host port on internal pin header

**Audio**
- i2S Audio interface on programmable pin header
-费率interface (In and Out) on programmable pin header

**Serial Ports**
- 2 x CAN Port reconfigurable as GPIO
- 2x RS-232 (Tx/RX signals only) + 1x RS-485 serial ports on expansion pin header

**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:
  - SPI interface input (PAL and HTS formats supported)
  - Up to 20 GPIO
  - SPI interface
  - SDIO Audio interface
  - i2S Audio interface
  - CAN interface (TTL level)
  - 2 x PWM
  - 3 x I2C
  - 3 x serial ports (2x RS-232 +1xRS-485 interface)

**Integrated Sensors**
- Optional 9-Axis Motion Sensors (Accelerometer, Magnetometer and Digital Gyroscope)

**Power Supply**
- +12Vdc nominal voltage
- +3.3Vdc cableled Cin Cell Battery

**Operating System**
- Linux Yocto

**Operating Temperature**
- 0°C ÷ +60°C

**Dimensions**
- 189.60 x 121.40 x 28.20 mm

---

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

### SYS-C90-DS

**Multi-Display Digital Signage Solution**

**Processor**
- AMD Ryzen™ Embedded V1000 family SoCs:
  - AMD Ryzen™ Embedded V1000 family SoCs:
  - AMD Ryzen™ Embedded V1000 family SoCs:

**System Memory**
- Up to 2x DDR4 5333MHz

**Mass Storage**
- Optional M.2 NVMe module (available sizes: 256GB, 512GB, 1TB, 2TB)

**Networking**
- Internal M.2 WWAN slot (Socket 2 Key B Type 2242/3042) for Modems

**USB**
- 2 x Gigabit Ethernet ports

**Video Interfaces**
- 4x DP++ connectors (only 3 working with R1000 SoCs)

**Video Resolution**
- Up to 4096 x 2160

**Serial Ports**
- Optional, 2x RS-232/RS-422/RS-485 ports on DB-9 connectors

**Other Interfaces**
- Externally accessible miniSIM Slot for the optional M.2 Modem

**Power Supply**
- Optional SATA SSD (available sizes: 256GB, 512GB, 1TB, 2TB)

**Operating System**
- Internal M.2 Connectivity Slot (Socket 1 Key E Type 2230) for WiFi / BT modules

**Operating Temperature**
- 0°C ÷ +50°C

**Dimensions**
- VESA standard wall mount bracket
**Fanless, compact and versatile embedded box PC**

**SYS-B68-IPC**

**DEVELOPMENT**

**SAMPLING**

**PRODUCTION**

Available in Industrial Temperature Range

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Atom™ x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intel® Atom™ x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP</td>
</tr>
<tr>
<td></td>
<td>Intel® Atom™ x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP</td>
</tr>
<tr>
<td>Memory</td>
<td>Quad Channel soldered down LPDDR4 memory, up to 8GB</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® HD Graphics SoC, or Intel® UHD Graphics, with up to 18 Execution Units</td>
</tr>
<tr>
<td>Video Interfaces</td>
<td>Two multimode Display Port on miniDP++ connectors</td>
</tr>
<tr>
<td>Video Resolution</td>
<td>Up to 4096 x 2160</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>Optional eMMC drive onboard</td>
</tr>
<tr>
<td>Networking</td>
<td>Optional SATA M.2 SSD module up to 512GB</td>
</tr>
<tr>
<td></td>
<td>2 x Gigabit Ethernet ports</td>
</tr>
<tr>
<td></td>
<td>Optional M.2 4G LTE module (alternative to M.2 SSD), with internal microSIM slot</td>
</tr>
<tr>
<td>USB</td>
<td>Optional M.2 Wi-Fi/BT LE module</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>2x RS-232/RS-422/RS-485 ports, software configurable, D99 male connectors</td>
</tr>
<tr>
<td>Audio</td>
<td>Internal HD Audio codec Cirrus Logic CS4207</td>
</tr>
<tr>
<td>Other Interfaces</td>
<td>Mic In and Line Out Audio jacks</td>
</tr>
<tr>
<td>Power Supply</td>
<td>PCB terminal block, type Phoenix 1990973</td>
</tr>
<tr>
<td></td>
<td>+18Vdc = +32 Vdc recommended</td>
</tr>
<tr>
<td></td>
<td>+15Vdc = +36 Vdc absolute</td>
</tr>
<tr>
<td>Operating System</td>
<td>Preinstalled OS (factory options):</td>
</tr>
<tr>
<td></td>
<td>- Microsoft Windows 10 IoT entry</td>
</tr>
<tr>
<td></td>
<td>- Linux Ubuntu 64-bit</td>
</tr>
<tr>
<td></td>
<td>- Wind River Linux (64-bit)</td>
</tr>
<tr>
<td></td>
<td>- Yocto (64-bit)</td>
</tr>
<tr>
<td></td>
<td>- Android (planning)</td>
</tr>
<tr>
<td>Operating Temperature*</td>
<td>-40°C + +85°C (Industrial version)</td>
</tr>
<tr>
<td>Optional accessories</td>
<td>miniDP++ to HDMI adapter</td>
</tr>
<tr>
<td>Dimensions</td>
<td>162.3 x 111.8 x 52.2mm</td>
</tr>
</tbody>
</table>

*Environment temperature measured near the heatsink’s fins. Upon customer to verify that the temperature remains within the admissible range.
# Industrial IoT Gateway based on the NXP i.MX 6SoloX Processor

**SYS-C23-IGW**

Enhance your edge capabilities with a Synthetic Brain

---

## Technical Specifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>NXP i.MX 6SoloX, Single core Cortex®-A9 @ 1GHz + Cortex®-M4 core @ 227MHz</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>32-bit DDR3L memory soldered onboard, up to 1GB</td>
</tr>
<tr>
<td><strong>Mass Storage</strong></td>
<td>8GB eMMC drive onboard</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>1MB SPI Flash</td>
</tr>
<tr>
<td><strong>Networking</strong></td>
<td>Up to 2 x FastEthernet RJ-45 ports, Onboard 2.4GHz WiFi (802.11 b/g/n) + BT LE combo module with external antenna (optionally available in Dual Band -2.4GHz and 5GHz version with 2 external antennas and 802.11a support, factory alternatives)</td>
</tr>
<tr>
<td><strong>Networking</strong></td>
<td>Optional LTE Cat4 Modem embedded onboard, with 2 external antennas, microSIM or electronic SIM soldered onboard for the optional Modem</td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>1 x USB 2.0 Type-A socket, 1 x USB 2.0 OTG on micro-AB connector</td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>1 x RS-232 port, 1 x RS-485 port, 2 x CAN Port</td>
</tr>
<tr>
<td><strong>Serial Ports</strong></td>
<td>4 x analog inputs, 2 x PWM, Power On/Off Button, Reset Button</td>
</tr>
<tr>
<td><strong>Other Interfaces</strong></td>
<td>3 x Multicolor Signalling LEDs</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>+12V DC power jack and 2-poles PCB terminal block for voltage supply, 2200mAh Li-Ion Rechargeable battery</td>
</tr>
<tr>
<td><strong>Operating System</strong></td>
<td>Linux with Edgehog Services installed</td>
</tr>
<tr>
<td><strong>Operating</strong></td>
<td>0°C ÷ +50°C</td>
</tr>
<tr>
<td><strong>Optional accessories</strong></td>
<td>DIN rail bracket kit</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>205 x 95.50 x 40.25mm</td>
</tr>
</tbody>
</table>

*Environment temperature measured near the heatsink’s fins. Upon customer to verify that the temperature remains within the admissible range.*
Smart Edge Computing

Smart Edge Compute Unit, a multi-connectivity and multi-protocol plug & play Industrial IoT gateway

SYS-B68-IGW

Heterogeneous Multi-core Processing Architecture for edge node computing and multimedia

SBC-C61

**Processor**
- Intel® Celeron® N3350 Dual Core @1.1GHz (burst 2.4GHz), 2MB L2 Cache, 6W TDP
- Intel® Celeron® J3355, Dual Core @2.0GHz (Burst 2.5GHz), 2MB L2 Cache, 10W TDP
- Intel® Celeron® J3455, Quad Core @1.5GHz (Burst 2.3GHz), 2MB L2 Cache, 10W TDP

**Max Cores**
- 4+1

**Memory**
- Quad Channel soldered down LPDDR4 memory, up to 8GB

**Video Interfaces**
- Two multimode Display Port on miniDP++ connectors

**Networking**
- 4x Ethernet ports
- 2x Gigabit Ethernet ports
- Optional M.2 WiFi/BT LE module
- Optional M.2 4G LTE module (alternative to M.2 SSD), with internal antenna

**Audio**
- Internal HD Audio codec Cirrus Logic CS4207
- Optional Amplified mono Speaker Output

**Mass Storage**
- Optional eMMC drive onboard
- Optional M.2 SSD module up to 512GB
- Optional M.2 4G LTE module

**Dimensions**
- 162.3 x 111.8 x 42.2mm

**Power Supply**
- Integrated Intel® HD Graphics 505 or 500 series controller
- Fanless convection cooling allows operation in a wide temperature range of -20°C ÷ 60°C

**Operating System**
- Android
- Yocto
- Wind River Linux

**Video Resolution**
- Up to 4096 x 2160 pixels

**USB**
- 2 x USB 3.0 Type-A sockets on Front Panel
- 2 x USB 2.0 Type-A sockets on Rear Panel

**Serial Ports**
- 2x Debug UARTS
- I/O Connectors with
  - 2xPWM @3.3V
  - 1x CAN + on-board ultra-low power RTC
  - 1x UARTs
  - 4x GPIOs / 1x UART
  - 1x RS-485 or CAN (factory options)

**Other Interfaces**
- Optional Accelerometer + Magnetometer, Gyroscope and Luminance sensors on-board
- Customised bracket for wall mount
- DC Power jack, with cable restraint
- Amplified mono Speaker Output

**Power**
- **+12VDC**
- **+5VDC**

**Packaging**
- Customised for wall mount or desktop use
- Customised bracket for wall mount

**Development**
- Smart Edge Computing
- SBC with NXP IMX 8M Mini Applications Processors

---

**Smart Edge Computing**

Boxed solution based on the Intel® Celeron® J / N Series and Intel® Pentium® N Series (formerly Apollo Lake) Processors

**Smart Edge Compute Unit**, a multi-connectivity and multi-protocol plug & play Industrial IoT gateway

**Dimensions**
- 162.3 x 111.8 x 42.2mm

**Temperature**
- Operating: 0°C ÷ +60°C (Commercial version)

**Power**
- **+12VDC**
- **+5VDC**

**Network**
- 2x Gigabit Ethernet ports (1 optional)
- Optional WiFi 802.11 a/b/g/n +BT LE 4.2 module

**Audio**
- Micro SD card slot
- Optional Amplified mono Speaker Output
- Digital Mic In connector (2x PDM inputs)

**Serial Ports**
- Up to 2x RS-232 or RS-485 or CAN Serial ports (factory options, shared with GPIOs and SPI interfaces)

**Power Supply**
- **+12VDC**
- **+5VDC**

**Operating System**
- Linux Ubuntu 64-bit
- Wind River Linux 64-bit
- Yocto (64-bit)
- Android (planning)

**Operating Temperature**
- 0°C ÷ +60°C (Commercial version)

**Optional accessories**
- minidp++ to HDMI adapter
- Customised bracket for wall mount

**Dimensions**
- 162.3 x 111.8 x 42.2mm

*Environment temperature measured near the heat sink’s fins. Upon customer to verify that the temperature remains within the admissible range.*
From sensors to Cloud in a single step

**SENSE-D01**

**Processor**
- ESP32-D0WDQ6 processor, Dual Core Xtensa® 32-bit LX6 Microprocessor

**Memory**
- Internal 520KB SRAM + 16KB SRAM in RTC

**Mass Storage**
- 4MB SPI Flash
- Optional microSD slot (alternative to Expansion PCB-terminal block #2)

**Networking**
- Embedded WiFi (802.11 b/g/n) + BT 4.2/Bluetooth LE module with PCB antenna

**Serial Ports**
- Optional 4-wire TTL port on 5-pin dedicated PCB Terminal Block
- Optional CAN Port on 3-pin dedicated PCB Terminal Block

**System Memory**
- Up to 2x 8GB DDR4 SODIMM modules

**Graphics**
- AMD Radeon™ 3rd -Generation Graphics Core Next (GCN)
  - RX-421BD -Radeon™ R7
  - RX-418GD -Radeon™ R6
  - RX-216GD -Radeon™ R5
  - GX-217GI -Radeon™ R6E
  - GX-224IJ, Radeon™ R4E
- Three independent displays supported (two with GX-217GI and GX-224IJ) DirectX® 12 supported
- Unified Video Decode (UVD) 6 (4K H.265 and H.264 decode)
- Video Coding Engine (VCE) 3.1 (4K H.264 encode)

**Video Interfaces**
- Up to 3 DP++ interfaces, supporting eDP1.4, DP 1.2, DVI and HDMI

**Video Resolution**
- Up to 4K

**Mass Storage**
- Up to 2x internal SATA drives
- Up to 2x CF/SATA Slots
- 1x microSD card slot

**Networking**
- 2x Gigabit LAN / Realtek RTL8111G Gigabit Ethernet controllers
- 1 x PCI-e x4 port on M.2 Key M SSD Slot

**USB**
- 2x USB 3.0 Type-A sockets
- 2x USB 2.0 Type-A sockets
- 2x USB 3.0 on internal pin header
- 2x USB 2.0 on internal pin header

**Audio**
- 5.1 non amplified audio Jacks
- S/PDIF Optical ( Toslink)
- Amplified Audio connector (Stereo Out + Subwoofer), 3x30W

**Serial Ports**
- 4 x RS-232 Full Modem ports on external DB9 male connectors
- 2 x RS-232 Full modem ports on internal IDC pin headers

**Power Supply**
- 220mAh non-rechargeable Coin cell battery for RTC

**Operating System**
- Microsoft® Windows 10
- Microsoft® Windows 10 IoT
- Linux

**Dimensions**
- 300 x 230 x 90 mm (11.81” x 9.05” x 3.54”)

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