INDEX

Qseven®
ATLAS p. 15
ARCALIS p. 15
MAIA p. 16
MIRA p. 16
NAOS p. 17
ASTERION p. 17
AVIOR p. 18
ALKES p. 18
ELECTRA p. 19
KUMA p. 19
NEMBUS p. 20
LIBERTAS p. 20
CQ7-D59 p. 21
CQ7-D03 p. 21
Q7 STARTER KIT 2.1 p. 22
Q7 DEV KIT 2.0 p. 22

SMARC
HALLEY p. 25
LEYV p. 25
SWAN p. 26
LEXELI p. 26
RUSSELL p. 27
JAGER p. 27
SMARC DEV KIT p. 28

COM Express®

Type 7
JULIET p. 31
THEBE p. 31
COM EXP T7 DEV KIT p. 32

Type 6
CALYPSO p. 32
OPHELIA p. 33
METIS p. 33
LARISSA p. 34
MIRANDA p. 34
OWERON p. 35
CHARON p. 35
TARVOS p. 36
CHANDRA p. 36
COMe-C30 p. 37
COM EXP T6 DEV KIT p. 37

ETX®

ETX-A61 p. 39

COM-HPC®

ORION p. 41
LAGOON p. 41
CARINA p. 42
COM-HPC CLIENT DEV KIT p. 42

BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS p. 44

MYON MicroModule SOM
Myon I (by Keith & Koep) p. 53
Myon II (by Keith & Koep) p. 53
ConXM (by Keith & Koep) p. 54
i-PAN M7 (by Keith & Koep) p. 54

TRIZEPS SODIMM SOM
Trizeps VIII Mini (by Keith & Koep) p. 57
Trizeps VIII (by Keith & Koep) p. 57
Trizeps VIII Plus (by Keith & Koep) p. 58
Trizeps VII (by Keith & Koep) p. 58
Trizeps VII SX (by Keith & Koep) p. 59
ConXT (by Keith & Koep) p. 59
iP5-Base (by Keith & Koep) p. 60
pConXS (by Keith & Koep) p. 60
pConXS III (by Keith & Koep) p. 61
i-PAN T7 II (by Keith & Koep) p. 61
i-PAN 7 (by Keith & Koep) p. 62

Single Board Computer

PRISMA p. 65
ICARUS p. 65
JUNO p. 66
MERIDA p. 66
ASTRID p. 67
VESTA p. 67
THEMIS p. 68
ADLER p. 68
SOLON p. 69
ALBION p. 69
ALVIN p. 70
HAGAR p. 70
NOLAN p. 71
MORIS p. 71
LAMPS p. 72
SBCSOM (by Keith & Koep) p. 72
TANARO (by Garz & Frickel) p. 73
NALLINO (by Garz & Frickel) p. 73
SANTINO LT (by Garz & Frickel) p. 74
SANTINO (by Garz & Frickel) p. 74
SANTARO (by Garz & Frickel) p. 75
SANTOKA (by Garz & Frickel) p. 75
SANTVEND (by Garz & Frickel) p. 76
SCORPIUS p. 76
UDOO X86 II p. 77
UDOO VISION p. 77
UDOO BOLT p. 78
UDOO BOLT GEAR p. 78
UDOO KEY p. 79
Endless ways to the future

SECO OFFERS

With over 40 years delivering high-tech electronics, SECO offers cutting-edge embedded computing, HMI, communications gateway, custom packaged product, and IoT software solutions through worldwide engineering design, manufacturing, and technical support excellence.

R&D | HW & SW | INTEGRATION
Integrated systems, boards, modules, and HMIs for edge computing and payment solutions
We make electronic devices smart and enable human-machine interaction.

OPEN SUSTAINABLE INNOVATION & PARTNERSHIPS
Solutions for tomorrow
Together with our ecosystem, we shape the leading technologies of the future. We develop highly innovative and scalable ideas and solutions, ready for mass production.

MISSION
We bring together technologies and skills to satisfy new needs and opportunities

VISION
We exist to open up the world to innovation

VALUES
Passion
Dynamism
Respect

IoT | DATA SCIENCE | AI
End-to-end IoT-AI suite
Using SECO’s Clea IoT/AI software platform, we move data between the edge and the cloud, and transform it into highly valuable, real-time information through Edge AI applications, data orchestration, data analytics, and Artificial Intelligence.

HOW WE ADDRESS THE NEED FOR DIGITALIZATION FROM EDGE TO AI

EDGE COMPUTING
(Edge platforms, semi-custom, full custom) and PAYMENT SOLUTIONS

EDGE PROCESSING EMBEDDED
on customers’ products extract data

ALL-IN-ONE SOFTWARE PLATFORM
Real-time operational insights
Optimized decision making

-800 people
250+ R&D people of which 150+ in AI algorithm development
>€15m R&D investments
9 R&D centers
5 production plants

Data refer to 2021
**PRODUCTS & SERVICES**

**OFF-THE-SHELF PRODUCTS**

**MODULAR SOLUTIONS**
- Qseven®
- SMARC
- COM-HPC®
- COM Express®
- ETX®/IXX
- Trizesps
- Myron

**PAYMENT SYSTEMS**
- Embedded NUC™
- 3.5"

**HMI SOLUTIONS AND FANLESS EMBEDDED COMPUTERS**
- Pico-ITX
- other SBCs

**FULL-CUSTOM SOLUTIONS**

Custom-designed circuitry, software, and enclosures to meet unique product requirements.

**SEMI-CUSTOM SOLUTIONS**

**CUSTOM CARRIER BOARDS + MODULAR SOLUTIONS**

**SOFTWARE CUSTOMIZATION**

- Customized BIOS
- Firmware & driver development
- BSP development
- Long-term support

- BIOS tuning
- Linux BSP & Android development
- Windows
- Firmware & driver support
- 24/7 support for the life of the product

**SYSTEMS AND ASSEMBLY**

- Software pre-installed on your system
- Assembly services
- Design and production of fanless embedded computers
- Touch display solutions
- Design and production of your final product

- Software preloaded
- Fanless embedded computers
- Touch displays
- Display assembly
**KNOW-HOW**

Augment the abilities of machines and people by using AI everywhere computing takes place.

**AI-AS-A-SERVICE COMPANY**

---

**PRODUCTS & SERVICES**

- **Open-source core**
  - All core middleware Clea components are open source software, contribute to, connect with, and join our growing community.

- **Device lifecycle management**
  - Clea manages OTA updates, remote debugging, blue/green app deployments and much more, with an intense focus on security.

- **Extensive, Scalable Data Orchestration**
  - Clea easily scales to a large number of connected devices, with the flexibility to control them in whatever granularity is required.

- **Deploy AI models everywhere**
  - Whether it's a pre-trained model or your very own, Clea enables you to easily deploy it at the edge or in the cloud, seamlessly.

---

**Vertical Applications for Clea**

- EV Charging Stations
- Digital Signage
- Healthcare
- Fleet Management
- Energy Production
- Factory Automation
- and many more...

---

**Data**

**Detection, identification, recognition**

**Personalization**

**Explainable AI (XAI)**

**Natural language processing**

**Analytics**
We create products to provide services

Welcome to Open Sustainability Innovation

**Minimum Viable Product**

First version at low cost and development time to collect initial feedback and improve the functionality of the product/service.

**Commercialization**

We make the product ready for mass production with the aim of the highest possible level of scalability.

**Exploration**

We constantly monitor emerging technologies. We listen to customer problems, understand their context, and propose paths to explore together.

**Analysis**

We analyze the problems, risks, and tradeoffs in depth, and together develop a project plan that factors in costs, schedule, risk, and contingencies.

**Test**

We test the solution to verify its effectiveness and measure its performance. We evaluate if the solution is satisfactory or whether it needs improvement.

**Production**

The best solution is commercialized, manufactured, and sold on the market, ready for user feedback for any further improvement.

SECO Next, the creative laboratory of the SECO Group for business. We challenge the ordinary with researchers and innovators who create innovative solutions.

**Products & Services**

- Adaptive & Federated Learning
- Machine Vision & Data Fusion
- 5G and Beyond
- Quantum Computing

**Know-How**

Next to you for the next future

SECO Next, the creative laboratory of the SECO Group for business. We challenge the ordinary with researchers and innovators who create innovative solutions.
SECO's solutions can be found at the heart of the most sophisticated and diverse products throughout many industries, such as traditional uses in industrial automation, biomedical devices, and digital signage to emerging applications like mobile devices and robotics.
Qseven® STANDARD ADVANTAGES

- 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

COST EFFECTIVE SOLUTION FOR HIGH VOLUME PROJECTS

- Arm and x86 cross-compatibility
- Design investment limited to the carrier board
- Low profile design
- Innovative and upgradable
- Temperature range: -40°C ÷ +85°C
- Also available: x86

EXCELLENT FOR IOT PROJECTS

- Low power consumption
- Accelerated time-to-market
- Multi-vendor solution
- Network interfaces
- Multi-lane interconnects
- Audio interfaces
- Memory interfaces
- Graphics interfaces
- Mass storage interfaces
- Video interfaces
- System interfaces
- USB interfaces
- PCIe interfaces
- SDIO interfaces
- SPI, I2C, I2S, CAN, SM Bus, Thermal Management, Fan management
- Power Management Signals

HIGH PROFILE DESIGN

- System to keep the heatspreader temperature in the range indicated.
- Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.

*Measured at any point of Qseven 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.

**Available in Industrial and Safety-certifiable versions

www.seco.com
Take advantage of the wide scalability offered by Qseven® form factor and the i.MX 8 family.

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

**MAIA**

- **Processor**
  - NXP i.MX 8Mowo Family
- **Memory**
  - 1 x 4GB DDR4-2666+SODIMM
  - 1 x 1.2GB LPDDR4-4000+SODIMM
- **Graphics**
  - Mali-G611, 3 x Mali-478, 2 x Mali-472
- **Audio**
  - quad从小就耳 Audio Interface
- **USB**
  - 1 x USB 2.0 Host Port
  - 1 x USB 3.0 Host Port
  - 2 x PCIe x1 Gen2 ports
- **Display Interface**
  - HDMI/DP, eDP interface or 18-/24-bit Dual Channel LVDS interface
- **Video Interfaces**
  - HDMI 2.0 Display Port Interface, supports HDCP 2.2 and HEC
  - eDP interface or 18-/24-bit Dual Channel LVDS interfaces
- **Operating System**
  - Linux
- **Dimensions**
  - 70 x 70 mm (2.76” x 2.76”)

**MIRA**

- **Processor**
  - i.MX 8QuadPlus
- **Memory**
  - 2x Cortex®-A72 cores @1.6GHz + 4x Cortex®-A53 cores up to 1.5GHz
  - 1x Cortex®-M4F core @266MHz
- **Graphics**
  - Mali-G611, 3 x Mali-478, 2 x Mali-472
- **Audio**
  - quad从小就耳 Audio Interface
- **USB**
  - 1 x USB 2.0 Host Port
  - 1 x USB 3.0 Host or Client Port
  - 4 x USB 2.0 Host Ports
- **Display Interface**
  - HDMI/DP, eDP interface or 18-/24-bit Dual Channel LVDS interface
- **Video Interfaces**
  - HDMI 2.0 Display Port Interface, supports HDCP 2.2 and HEC
  - eDP interface or 18-/24-bit Dual Channel LVDS interfaces
- **Operating System**
  - Linux
- **Dimensions**
  - 70 x 70 mm (2.76” x 2.76”)

**NAIOS**

- **Processor**
  - Intel® Atom™ E3845, Dual Core @1.66GHz, 5W TDP
  - Intel® Atom™ E3827, Dual Core @1.46GHz, 7W TDP
  - Intel® Atom™ E3826, Dual Core @1.46GHz, 7W TDP
- **Memory**
  - up to 4GB LPDDR4-2133+SODIMM
  - 1 x 4GB DDR4-2133 Memory, up to 4 GB
- **Graphics**
  - Intel® HD Graphics 500 series controller with up to 18 Execution Units
  - HP video graphics controller with up to 32 dedicated units
- **Audio**
  - quad从小就耳 Audio Interface
- **USB**
  - 1 x USB 3.0 Host port
  - 4 x USB 2.0 Host Ports
- **Display Interface**
  - HDMI/DP, eDP interface or 18-/24-bit Dual Channel LVDS interface
- **Video Interfaces**
  - HDMI 2.0 Display Port Interface, supports HDCP 2.2 and HEC
  - eDP interface or 18-/24-bit Dual Channel LVDS interfaces
- **Operating System**
  - Linux
- **Dimensions**
  - 70 x 70 mm (2.76” x 2.76”)

**ASTERION**

- **Processor**
  - Intel® Atom™ E3845, Dual Core @1.66GHz, 5W TDP
  - Intel® Atom™ E3827, Dual Core @1.46GHz, 7W TDP
  - Intel® Atom™ E3826, Dual Core @1.46GHz, 7W TDP
- **Memory**
  - up to 4GB LPDDR4-2133+SODIMM
  - 1 x 4GB DDR4-2133 Memory, up to 4 GB
- **Graphics**
  - Intel® HD Graphics 500 series controller with up to 18 Execution Units
  - HP video graphics controller with up to 32 dedicated units
- **Audio**
  - quad从小就耳 Audio Interface
- **USB**
  - 1 x USB 3.0 Host port
  - 4 x USB 2.0 Host Ports
- **Display Interface**
  - HDMI/DP, eDP interface or 18-/24-bit Dual Channel LVDS interface
- **Video Interfaces**
  - HDMI 2.0 Display Port Interface, supports HDCP 2.2 and HEC
  - eDP interface or 18-/24-bit Dual Channel LVDS interfaces
- **Operating System**
  - Linux
- **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.

*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.

Temperature Range

- Available in Industrial: -40°C ÷ +85°C (Industrial version)
  - 0°C ÷ +60°C (Commercial version)
- Temperature Range
  - Supported Operational Temperature Range
  - Ambient Temperature Range
  - Maximum Storage Temperature Range
  - -40°C ÷ +85°C (Industrial version)
  - 0°C ÷ +60°C (Commercial version)
- Ambient Temperature Range
  - -10°C ÷ +60°C (Industrial version)
  - 0°C ÷ +40°C (Commercial version)
- Maximum Storage Temperature Range
  - -40°C ÷ +85°C (Industrial version)
  - 0°C ÷ +60°C (Commercial version)
- Ozone Depleting Substance (ODS) Compliant Carrier boards
  - Ozone Depleting Substance (ODS) Compliant Carrier boards
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  - Ozone Depleting Substance (ODS) Compliant Carrier boards
  - Ozone Depleting Substance (ODS) Compliant Carrier boards
**AVIOR**

- **Processor**: Intel® Atom™ E3815, Single Core @1.46GHz, 512KB Cache, 5W TDP
- **Memory**: Up to 4GB DDR3L on-board (up to 2GB in i.MX6)
- **Graphics**: Dedicated 2D/3D accelerator
- **I/O Interfaces**: 1 x USB OTG interface
- **Networking**: 3 x PCI-e x1 lanes Gen2
- **Audio**: AC’97 Audio Interface
- **Video**: Single Channel 1804-bit pixel interface
- **Mass Storage**: 1 x 256GB eMMC drive soldered on-board
- **Power Supply**: +5VSB (optional)

**Technical Specifications**

- **Temperature Range**: 0°C ÷ +60°C (Commercial version)
- **Operating System**: Linux (Yocto)
- **USB**: 1 x 3.0 USB host port
- **Mass Storage**: 1 x 256GB eMMC drive soldered on-board
- **Power Supply**: +5VSB (optional)

**Additional Features**

- Optimal balance of performance and power
- **Dimensions**: 55 x 55 mm (2.17" x 2.17")

**Compatibility**

- **Operating Systems**: Linux (Yocto), Microsoft® Windows 7 (32/64 bit)

---

**AI-ENABLED**

**Dimensions**

- **System**: Interfaces
  - **Serial Port**: (TTL interface)
  - **Audio**: SPI interface
  - **Mass Storage**: LPC Bus

**Other**

- **Operating System**: Linux
- **Power Supply**: +5VSB (optional)

**Technical Specifications**

- **Temperature Range**: 0°C ÷ +60°C (Commercial version)
- **Operating System**: Linux
- **USB**: 1 x 3.0 USB host port
- **Mass Storage**: 1 x 256GB eMMC drive soldered on-board
- **Power Supply**: +5VSB (optional)

**Additional Features**

- Optimal balance of performance and power
- **Dimensions**: 70 x 70 mm (2.76" x 2.76")

**Compatibility**

- **Operating Systems**: Linux (Yocto), Microsoft® Windows 7 (32/64 bit)

---

**AI-ENABLED**

**Dimensions**

- **System**: Interfaces
  - **Serial Port**: (TTL interface)
  - **Audio**: SPI interface
  - **Mass Storage**: LPC Bus

**Other**

- **Operating System**: Linux
- **Power Supply**: +5VSB (optional)

**Technical Specifications**

- **Temperature Range**: 0°C ÷ +60°C (Commercial version)
- **Operating System**: Linux
- **USB**: 1 x 3.0 USB host port
- **Mass Storage**: 1 x 256GB eMMC drive soldered on-board
- **Power Supply**: +5VSB (optional)

**Additional Features**

- Optimal balance of performance and power
- **Dimensions**: 70 x 70 mm (2.76" x 2.76")

**Compatibility**

- **Operating Systems**: Linux (Yocto), Microsoft® Windows 7 (32/64 bit)
## Carrier Board for Qseven® and µQseven® Modules in Embedded NUC™ Form Factor

**NEMBUS**

### Dimensions
- 146 x 102 mm (5.75” x 4.02”)

### Temperature
- **Operating**: 0°C ÷ +70°C

### Power Supply
- **Input Voltage**: +12VDC (±5%) or ±5VDC

### Interfaces
- 1 x PCIe x1 lane (optional PCIe x1 or Gen0 are supported)
- 1 x USB OTG interface
- 1 x USB 2.0 Host interface
- 2 x Serial ports (TTL interface)
- 1 x PCIe x1 lane (optional PCIe x1 or Gen0 are supported)

### Other Interfaces
- 1 x JTAG connector
- 1 x LPC 12-bit ADC interface
- 1 x SPI interface
- 1 x CMOS memory connector
- 1 x PCIe x1 lane (optional PCIe x1 or Gen0 are supported)

### Memory
- **Max Cores**: 4

### Networking
- 1 x 10/100 Ethernet interface
- 1 x 1G Ethernet interface
- 1 x 1G Ethernet interface

### Storage
- **Mass Storage**: microSD Slot

### Audio
- 1 x Audio interface on internal pin header

**LIBERTAS**

### Dimensions
- 190 x 110 mm (7.48” x 4.33”)

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

### Power Supply
- **Input Voltage**: +5VDC ± 5%

### Interfaces
- 1 x PCIe x1 lane (only PCIe x1 lane and Gen0 are supported)

### Other Interfaces
- 1 x TE622 connector
- 1 x TE622 connector
- 1 x TE622 connector
- 1 x USB 2.0 Host interface

### Memory
- **Max Cores**: 2

### Networking
- 1 x Ethernet interface
- 1 x Ethernet interface
- 1 x Ethernet interface

### Storage
- **Mass Storage**: microSD Slot

### Audio
- 1 x Audio interface on internal pin header

**NPP LMK 6**

### Dimensions
- 70 x 70 mm (2.76” x 2.76”)

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

### Power Supply
- **Input Voltage**: +5VDC ± 5%

### Interfaces
- 1 x PCIe x1 lane (only PCIe x1 lane and Gen0 are supported)

### Other Interfaces
- 1 x TE622 connector
- 1 x TE622 connector
- 1 x TE622 connector
- 1 x USB 2.0 Host interface

### Memory
- **Max Cores**: 2

### Networking
- 1 x Ethernet interface
- 1 x Ethernet interface
- 1 x Ethernet interface

### Storage
- **Mass Storage**: microSD Slot

### Audio
- 1 x Audio interface on internal pin header

---

**Carrier Board for Qseven® with µQseven® Modules in Embdedded NUC™ Form Factor**

**CQ7-059**

### Dimensions
- 101.6 x 101.6 mm (4” x 4”)

### Temperature
- **Operating**: 0°C ÷ +70°C

### Power Supply
- **Input Voltage**: +12VDC (±5%)

### Interfaces
- 1 x Gigabit Ethernet interface
- 1 x USB 2.0 Host interface
- 1 x USB 2.0 Host interface
- 1 x USB 3.0 Host interface
- 1 x SD SIM Slot

### Other Interfaces
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface

**CQ7-035**

### Dimensions
- 110 x 72 mm (4.33” x 2.83”)

### Temperature
- **Operating**: 0°C ÷ +70°C

### Power Supply
- **Input Voltage**: +12VDC (±5%)

### Interfaces
- 1 x Gigabit Ethernet interface
- 1 x USB 2.0 Host interface
- 1 x USB 2.0 Host interface
- 1 x USB 2.0 Host interface
- 1 x SD SIM Slot

### Other Interfaces
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface

---

**Carrier Board for Qseven® and µQseven® Modules**

**CQ7-059**

### Dimensions
- 146 x 102 mm (5.75” x 4.02”)

### Temperature
- **Operating**: 0°C ÷ +70°C

### Power Supply
- **Input Voltage**: +12VDC (±5%)

### Interfaces
- 1 x Gigabit Ethernet interface
- 1 x USB 2.0 Host interface
- 1 x USB 2.0 Host interface
- 1 x SD SIM Slot

### Other Interfaces
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface

**CQ7-035**

### Dimensions
- 110 x 72 mm (4.33” x 2.83”)

### Temperature
- **Operating**: 0°C ÷ +70°C

### Power Supply
- **Input Voltage**: +12VDC (±5%)

### Interfaces
- 1 x Gigabit Ethernet interface
- 1 x USB 2.0 Host interface
- 1 x USB 2.0 Host interface
- 1 x SD SIM Slot

### Other Interfaces
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
- 1 x Gigabit Ethernet interface
Quickly “start” prototyping for short time-to-market

Q7 STARTER KIT 2.1

Available in Industrial Temperature Range

Everything you need for flexible development

Q7 DEV KIT 2.0

Available in Industrial Temperature Range

<table>
<thead>
<tr>
<th>FEATURES OF Q7-098</th>
<th>FEATURES OF Q7-430</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video</td>
<td>Video</td>
</tr>
<tr>
<td>Interfaces</td>
<td>HDMI / Display Port Interface on PCI-e x16 slot</td>
</tr>
<tr>
<td>Mass Storage</td>
<td>LSIO / 60P Interface on PCI-e x8 slot</td>
</tr>
<tr>
<td>Networking</td>
<td>1x SATA connector with dedicated Power connector, interface shared with mSATA slot</td>
</tr>
<tr>
<td>USB</td>
<td>SFF-8643 SLOT 22-pin connector with dedicated Power connector</td>
</tr>
<tr>
<td>Audio</td>
<td>SPID Flash socket</td>
</tr>
<tr>
<td>Audio Interface</td>
<td>USB 2.0 Flash Slot</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>Gigabit Ethernet connector</td>
</tr>
<tr>
<td>Other Interfaces</td>
<td>Gigabit Ethernet connector</td>
</tr>
<tr>
<td>Power Supply</td>
<td>1x USB 2.0 OTG micro-AB socket (functionality dependent)</td>
</tr>
<tr>
<td>Power</td>
<td>1x USB 3.0 Host Type-A socket</td>
</tr>
<tr>
<td>Supply</td>
<td>1x USB 2.0 OTG micro-AB socket</td>
</tr>
<tr>
<td>Operating</td>
<td>1x USB 2.0 OTG micro-AB socket</td>
</tr>
<tr>
<td>Temperature</td>
<td>1x USB 2.0 OTG micro-AB socket</td>
</tr>
<tr>
<td>Dimensions</td>
<td>2x USB Ports on internal panel (alternatives to USB 3.0 port #0)</td>
</tr>
<tr>
<td></td>
<td>2x USB Ports on internal panel (alternatives to USB 3.0 port #0)</td>
</tr>
</tbody>
</table>

*All carrier board components must remain within the operating temperature at any and all times, including startup; 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.*
SMARC STANDARD ADVANTAGES

- **SMARC**
  - **embedded DisplayPort 2**
  - **LVDS channels**
  - **Serial ATA channels**
  - **PCI Express lanes**
  - **System I/O interface**
- **UARTs**
- **High Definition Audio / I2S**
- **Camera interfaces**
  - **MIPI CSI**

**SMARC SUPPORTED FEATURES**

- **INTERFACES**
  - **DUAL ETHERNET**
  - **LOW POWER DESIGN**
  - **UP TO FOUR DISPLAY INTERFACES**
  - **DESIGN INNOVATIVE AND UPGRADABLE**
  - **CONSOLIDATED STANDARD FORM FACTOR**
  - **ACCELERATED TIME-TO-MARKET**

**Computer-on-Module Approach**

Design investment limited to the carrier board | Consolidated standard form factor | Scalable and future-proof | Long-term availability | Arm and 46S cross-compatibility | Multi-vendor solution | Highly configurable | Accelerated time-to-market

**SMARC SUPPORTED FEATURES**

- **PROCESSOR**
- **MEMORY**
- **GPU**
- **NETWORKING**
- **USB**
- **CAN-BUS**

**Networks**

- **Quad SPI Interface**
  - **Up to 14 GPIOs**
  - **2 x USB 2.0 Host Ports**
  - **1 x USB 2.0 OTG port**

**Audio**

- **2x CS Audio Interfaces**
  - **2x 24-bit DACs**

**System I/O Interface**

- **EIO Express lanes**
  - **16x PCI Express**
  - **Up to 4 x Serial Ports**

**Video**

- **HDMI, LVDS, eDP**
  - **Up to 1920 x 1080p @60Hz**

**Power**

- **Supply + -4.5V and +3.3V**

**Dimensions**

- **50 x 82 mm (1.97" x 3.23")**

**Temperature**

- **-40°C ÷ +85°C (Industrial version)**
  - **0°C ÷ +60°C (Commercial version)**

**System on Module**

- **Celeron® J / N Series**
  - **Celeron® N6415**
  - **Celeron® N6405**
  - **Celeron® N6205**

- **Pentium®**
  - **Pentium® x6427FE**
  - **Pentium® x6425E**
  - **Pentium® x6425RE**

- **Atom™**
  - **Atom™ x6427FE**
  - **Atom™ x6425E**
  - **Atom™ x6425RE**

- **Intel® Atom™ x6000E**
  - **Intel® x6427E**

**Product Line**

- **SECO is one of the founding members of SGET and a core member of the Qualcomm® standard**

**www.seco.com**
### SMARC® with NXP i.MX 8X

**Processor**
- NXP i.MX 8X Family based on Arm Cortex® A53 core + general purpose Cortex® M4 core
- Dual or Quad Arm Cortex® A53 Cores + 1 Cortex® M4 core

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

**Memory**
- Up to 4GB eMMC 5.1 Drive, optional

**Video Resolution**
- HDMI 2.0a interface, supporting HDCP 2.2 and HDCP 1.4
- 18-/24-bit Dual Channel (HDMI interfaces)

**Audio**
- Up to 2 x USB 2.0 Host Ports

**Power**
- Up to 40Wq (1000 to 800 MHz)

**Temperature**
- (-20°C ÷ +70°C) Industrial version

**Operating**
- Linux

**Operating System**
- Android

**Supply Voltage**
- +5.0V DC

**Expansion Port**
- 1 x PC/104 Bus slot

**Other Interfaces**
- 2 x UART interfaces

### SMARC® with Xilinx® Zynq® UltraScale™

**Processor**
- Xilinx® Zynq® UltraScale™ ZU5EV 1900 X2, ZU5EG X2, XUG3 X2, ZU4EG X2, ZU3EG X2
- Dual-core ARM Cortex® A53 + MPSoC Application Processing Unit + Dual-core ARM Cortex® A57 Real-Time Processing Unit
- Quad-core ARM Cortex® A53 + MPSoC Application Processing Unit + Dual-core ARM Cortex® A57 Real-Time Processing Unit

**Memory**
- Soldered Down 16GB DDR4 memory

**Video Resolution**
- (1 x) HDMI 2.0 con HDMI 2.0 or (2 x) HDMI 2.0

**Audio**
- Up to 2 x USB 2.0 Host Ports

**Power**
- Up to 40Wq (3800 to 1000 MHz)

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

**Operating Temperature**
- -40°C ÷ +85°C Commercial version

**Supply Voltage**
- +5.0V DC

**Expansion Port**
- 1 x PCIe 4 x 4 Slot

**Other Interfaces**
- 2 x UART interfaces

**Temperature**
- (-40°C ÷ +85°C) Commercial version

---

*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, environment and/or ambient. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*

*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, environment and/or ambient. 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 / 2.1.1 compliant modules

SMARC DEV KIT

FEATURES OF CSM-B79

Video Interfaces
- LVDS/MIPI-DSI connector, interface shared with 2x eDP connectors
- Backlight control + LED selectable voltages dedicated connector
- 2x eDP++ connections, interface shared with 2x eDP+

Audio
- THSS Mic In + Line Out Audio Jack
- Onboard 10G Audio Codec (TI TEGRA1X1320AD + HD Audio Codec (Cirrus Logic CS4207)

Networking
- 2x Gigabit RJ-45 Ethernet connectors
- M.2 Socket Key E Slot for Wi-Fi Modules
- M.2 Socket Key B Slot for WWAN Modules

Mass Storage
- Up to 2x Dual M.2 2230/2242/2260 Key B slots for WiFi Modules
- Interface shared with PCI-e x 4 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

PCI-e
- M.2 Socket Key E Slot for WiFi/BT Modules (interface shared with PCI-e x 4 slot)
- M.2 Socket Key B Slot for WWAN Modules (interface shared with PCI-e x 4 slot), connected to on-board microSIM slot

Mass Storage
- 5x SATA M.2 2230/2242/2260 Key B slots
- 1x microSD Card Slot

Power Supply
- 9-24V through dedicated Mini Fit 2.54mm power connector
- 6-17V through 4x3Batreo battery connector

Dimensions
- 243.84 x 243.84mm (microATX)
- 248.84 x 248.84mm (mmATX)

*All carrier board components must remain within the operating temperatures 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 environment. User is advised to consider specific cooling solutions for the final system.
COM EXPRESS® STANDARD ADVANTAGES

- Scalable and future-proof
- Design investment limited to the carrier board
- Multi-vendor solution
- Long-term availability
- High-performance project requirements
- Innovative and upgradable
- Extremely feature-rich

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 6 (Min/Max)</th>
<th>Type 7 (Min/Max)</th>
<th>Type 7 (Min/Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM Express Lane 0-1</td>
<td>16x</td>
<td>16x</td>
<td>16x</td>
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<tr>
<td>COM Express Lane 2-3</td>
<td>0x</td>
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<tr>
<td>COM Express Lane 4-5 (Options)</td>
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<tr>
<td>COM Express Lane 6-7 (Options)</td>
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<tr>
<td>COM Express Lane 8-9 (Options)</td>
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<tr>
<td>COM Express Lane 10-11 (Options)</td>
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<tr>
<td>COM Express Lane 12-13 (Options)</td>
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<tr>
<td>COM Express Lane 14-15 (Options)</td>
<td>0x</td>
<td>0x</td>
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</tr>
</tbody>
</table>

* Mandatory interface
Platform independent fast kit for time-to-market

COM Express® Compact Type 6 with 11th Gen Intel® Core™ (formerly Tiger Lake UP3)

High-performance, responsive CPU and GPU compute in COM Express® Compact form factor

**FEATURES OF COM-EXP-7**

- **Dimensions:** 95 x 95 mm (Com Express Compact Form factor, Type 6 pinout)
- **Temperature Range:**
  - 0°C ÷ +60°C (commercial version)
  - -40°C ÷ +85°C (industrial)
- **Supply:**
  - +12VDC ± 10%, +5VSB (optional), +3VRTC (optional)
- **Power:**
  - 2x SATA Gen3 channels
- **Video Interfaces:**
  - 8 x USB 2.0 Host ports
  - 2x PCI-e x1 Gen3 lanes
- **Audio:**
  - HD audio interface
- **Serial Ports:**
  - 8x UARTs
- **Networking:**
  - Gigabit Ethernet interface
  - 3x SuperSpeed USB 3.1 Gen2 host ports
- **Memory:**
  - 2x SDRAM DIMM slots supporting DDR4-3200 memory, up to 64GB
- **Processor:**
  - Up to 4 independent displays supported
- **Graphics:**
  - Up to 4 x Display Interfaces (DDIs), supporting DVI, DP 1.4, HDMI 2.0, 1 x DP 1.4 in Single/Dual-Channel 18-04-04-04 mode
- **Other Interfaces:**
  - 3x SuperSpeed USB 5Gbps host ports
  - 1x SuperSpeed USB 10Gbps host port
  - 2x 2.1 Audio Interfaces
- **Development Kit:**
  - COM EXP T7 DEV KIT

**COM Express® Compact Type 6 with AMD Ryzen® Embedded V2000**

High-performance AMD Ryzen® core for graphics and compute demanding edge applications

**FEATURES OF COM-EXP-7**

- **Dimensions:** 95 x 95 mm (Com Express Compact Form factor, Type 6 pinout)
- **Temperature Range:**
  - 0°C ÷ +60°C (commercial version)
  - -40°C ÷ +85°C (industrial)
- **Supply:**
  - +12VDC ± 10%, +5VSB (optional), +3VRTC (optional)
- **Power:**
  - 2x SATA Gen3 channels
- **Video Interfaces:**
  - 8 x USB 2.0 Host ports
  - 2x PCI-e x1 Gen3 lanes
- **Audio:**
  - HD audio interface
- **Serial Ports:**
  - 8x UARTs
- **Networking:**
  - Gigabit Ethernet interface
  - 3x SuperSpeed USB 3.1 Gen2 host ports
- **Memory:**
  - 2x SDRAM DIMM slots supporting DDR4-3200 memory, up to 64GB
- **Processor:**
  - Up to 4 independent displays supported
- **Graphics:**
  - Up to 4 x Display Interfaces (DDIs), supporting DVI, DP 1.4, HDMI 2.0, 1 x DP 1.4 in Single/Dual-Channel 18-04-04-04 mode
- **Other Interfaces:**
  - 3x SuperSpeed USB 5Gbps host ports
  - 1x SuperSpeed USB 10Gbps host port
  - 2x 2.1 Audio Interfaces
- **Development Kit:**
  - COM EXP T7 DEV KIT

**COM Express® Compact Type 6 with AMD Ryzen® Embedded R1000**

Low-end AMD Ryzen® on COM Express® 6 Compact Type

**FEATURES OF COM-EXP-7**

- **Dimensions:** 95 x 95 mm (Com Express Compact Form factor, Type 6 pinout)
- **Temperature Range:**
  - 0°C ÷ +60°C (commercial version)
  - -40°C ÷ +85°C (industrial)
- **Supply:**
  - +12VDC ± 10%, +5VSB (optional), +3VRTC (optional)
- **Power:**
  - 2x SATA Gen3 channels
- **Video Interfaces:**
  - 8 x USB 2.0 Host ports
  - 2x PCI-e x1 Gen3 lanes
- **Audio:**
  - HD audio interface
- **Serial Ports:**
  - 8x UARTs
- **Networking:**
  - Gigabit Ethernet interface
  - 3x SuperSpeed USB 3.1 Gen2 host ports
- **Memory:**
  - 2x SDRAM DIMM slots supporting DDR4-3200 memory, up to 64GB
- **Processor:**
  - Up to 4 independent displays supported
- **Graphics:**
  - Up to 4 x Display Interfaces (DDIs), supporting DVI, DP 1.4, HDMI 2.0, 1 x DP 1.4 in Single/Dual-Channel 18-04-04-04 mode
- **Other Interfaces:**
  - 3x SuperSpeed USB 5Gbps host ports
  - 1x SuperSpeed USB 10Gbps host port
  - 2x 2.1 Audio Interfaces
- **Development Kit:**
  - COM EXP T7 DEV KIT
COM Express® Type 6 with 8th Gen Intel® Core™ and Xeon® U-series (formerly Whiskey Lake-U)

**Low power multi-core Intel® architecture for mobile applications**

**LARISSA**

- Processor: Intel® Core™ i7-8565U, Quad Core @ 1.8GHz (Turbo Boost 4.6GHz), 8MB L2 Cache, 15W TDP
- Memory: Up to 32GB DDR4-2400 RAM, 2666 MHz, 3200 MHz, 3200MHz, 2666MHz, 2133MHz, 1866MHz
- Video: UMA Graphics, option: Intel® UHD Graphics 620
- Audio: HD Audio, 2x Headphone amplifiers, 2x Line-Out ports, 2x Line-In ports
- Networking: Intel® Gigabit Ethernet, 2x RJ-45
- USB: 6 x USB 3.1 Gen 2, 4 x USB 3.1 Gen 1
- Expansion: 1 x M.2 (NGFF) slot, 1 x PCIe Expander
- Dimensions: 10 x 15 cm
- Temperature: Industrial: -40°C ÷ +85°C
- Availability: European Union

**Rugged solution for industrial environment**

**MIRANDA**

- Processor: Intel® Xeon® Gold 5118, Six Core @ 2.4GHz (4.4GHz Max 1 Core Boost), 12MB Cache, 95W TDP
- Memory: Up to 128GB DDR4-2666 RAM, 2666 MHz, 2133MHz, 1866MHz, 1333MHz, 1066MHz
- Video: UMA Graphics, option: Intel® UHD Graphics 640
- Audio: HD Audio, 2x Headphone amplifiers, 2x Line-Out ports, 2x Line-In ports
- Networking: Intel® Gigabit Ethernet, 2x RJ-45
- USB: 6 x USB 3.1 Gen 2, 4 x USB 3.1 Gen 1
- Expansion: 1 x M.2 (NGFF) slot, 1 x PCIe Expander
- Dimensions: 10 x 15 cm
- Temperature: Industrial: -40°C ÷ +85°C
- Availability: European Union

COM Express® Basic Type 6 with Intel® Atom™ E, Celeron® N, Pentium® N Series (formerly Apollo Lake)

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

**OBERON**

- Processor: Intel® Atom™ x7-E3950, Dual Core @ 1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 10W TDP
- Memory: Up to 16GB DDR3-1600 RAM, 1333MHz, 1066MHz
- Video: UMA Graphics, option: Intel® UHD Graphics 600
- Audio: HD Audio, 2x Headphone amplifiers, 2x Line-Out ports, 2x Line-In ports
- Networking: Intel® Gigabit Ethernet, 2x RJ-45
- USB: 6 x USB 3.1 Gen 2, 4 x USB 3.1 Gen 1
- Expansion: 1 x M.2 (NGFF) slot, 1 x PCIe Expander
- Dimensions: 10 x 15 cm
- Temperature: Industrial: -40°C ÷ +85°C
- Availability: European Union

COM Express® Compact Type 6 with AMD Ryzen™ Embedded V1000

**Next Generation x86™ Zen core and elite GPU performance**

**CHARON**

- Processor: AMD Ryzen™ Embedded V1000 with AMD RYZEN™ 11000 Graphics, Quad Core Dual Thread 2.3GHz (Turbo 3.5GHz) with AMD Radeon™ 9 Graphics, Quad Core Dual Thread 2.5GHz (Turbo 3.5GHz) with AMD Radeon™ 9 Graphics, Quad Core Dual Thread 2.5GHz (Turbo 3.5GHz)
- Memory: Up to 32GB DDR4-2666 RAM, 2666 MHz, 2133MHz, 1866MHz
- Video: UMA Graphics, option: AMD Radeon™ Vega 8 Graphics, Quad Core Dual Thread 2.5GHz (Turbo 3.5GHz), Quad Core Dual Thread 2.5GHz (Turbo 3.5GHz)
- Audio: HD Audio, 2x Headphone amplifiers, 2x Line-Out ports, 2x Line-In ports
- USB: 6 x USB 3.1 Gen 2, 4 x USB 3.1 Gen 1
- Expansion: 1 x M.2 (NGFF) slot, 1 x PCIe Expander
- Dimensions: 10 x 15 cm
- Temperature: Industrial: -40°C ÷ +85°C
- Availability: European Union
### Carrier Board for COM Express® Type 6 modules in 3.5" Form Factor

<table>
<thead>
<tr>
<th>Features of COM Express® Modular Carrier Board</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>事业发展 kit for COM Express® Modules</td>
<td></td>
</tr>
<tr>
<td>Development kit for COM Express® Modules</td>
<td></td>
</tr>
<tr>
<td>Cross Platform Dev Kit compatible with x86 and Arm COM Express® Type 6 modules</td>
<td></td>
</tr>
</tbody>
</table>

### Carrier Board

<table>
<thead>
<tr>
<th>Video Interfaces</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3x HDMI 1.4a-compatible ports</td>
<td></td>
</tr>
<tr>
<td>Additional DisplayPort (DP++) interface</td>
<td></td>
</tr>
<tr>
<td>Additional DisplayPort (DP++) interface</td>
<td></td>
</tr>
<tr>
<td>3 x USB 3.1 Gen 1 port</td>
<td></td>
</tr>
<tr>
<td>1 x Audio jack (front panel)</td>
<td></td>
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<tr>
<td>VLX (VGA)</td>
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</tbody>
</table>

### Mass Storage Interfaces

<table>
<thead>
<tr>
<th>Serial Ports</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 x RS-232/422/485</td>
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</tr>
<tr>
<td>1 x RS-232/422/485</td>
<td></td>
</tr>
<tr>
<td>1 x Micro-USB port</td>
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<tr>
<td>1 x Micro-USB port</td>
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</tbody>
</table>

### Networking Interfaces

<table>
<thead>
<tr>
<th>Power Supply</th>
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</thead>
<tbody>
<tr>
<td>4-pin +12V pin</td>
<td></td>
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<tr>
<td>4-pin +12V pin</td>
<td></td>
</tr>
<tr>
<td>4-pin +5V pin</td>
<td></td>
</tr>
<tr>
<td>4-pin +5V pin</td>
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</table>

### Operating System

<table>
<thead>
<tr>
<th>Dimensions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>146.5x102mm (3.5&quot; form factor, 5.75&quot; x 4.02&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

No carrier board components must remain within the operating temperature at any and all times, including during idle state; carrier operating temperature is independent of the module installed. Please refer to the specific carrier for more details. Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system.

### COM Express® Compact Type 6 with Intel® Atom™ E8300 and Celeron® (formerly Bay Trail)

<table>
<thead>
<tr>
<th>Processor</th>
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<tr>
<td>Intel® Atom™ E8300</td>
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### COM Express® Basic Type 6 with Intel® i7 and 7th Gen Core™ i3/i5/i7 (formerly Skylake and Kabylake)

<table>
<thead>
<tr>
<th>Processor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® i7-6700HQ</td>
<td></td>
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<tr>
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<tr>
<td>Intel® i7-6700HQ</td>
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</table>

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

---

### COM Express® Basic Type 6 with Intel® Atom™ E8300 and Celeron® (formerly Bay Trail)

When high graphics and Hyper-threading matter.

Versatile and rugged.

COM Express® Compact Type 6 with Intel® Atom™ E8300 and Celeron® (formerly Bay Trail)

<table>
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<tr>
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### COM Express® Basic Type 6 with Intel® i7 and 7th Gen Core™ i3/i5/i7 (formerly Skylake and Kabylake)

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*Measured at any point of COM Express standard specification for this product, during any and all times (including idle state); Actual temperature will widely depend on application, enclosure and/or environment. Upon customer to consider specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.
ETX® STANDARD ADVANTAGES

- **COMPUTER-ON-MODULE APPROACH**
  - Design investment limited to the carrier board
  - Consolidated standard form factor
  - Scalable and future-proof
  - Arm and x86 cross-compatibility
  - Multi-vendor solution
  - Highly configurable
  - Accelerated time-to-market

### EXTEND THE LIFE OF EXISTING ETX-BASED PROJECTS

- **ISA BUS SUPPORT**

### FOR LEGACY DESIGNS

- **X86 BASED COM**

### PROVEN AND ESTABLISHED STANDARD

### E T X ®  3 . 0

**Long Term Support**

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<table>
<thead>
<tr>
<th>Processor</th>
<th>E3845: Quad Core @1.91GHz, 2MB Cache, 10W TDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E3827: Dual Core @1.75GHz, 1MB Cache, 8W TDP</td>
</tr>
<tr>
<td></td>
<td>E3826: Dual Core @1.46GHz, 1MB Cache, 7W TDP</td>
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<tr>
<td></td>
<td>E3825: Dual Core @1.33GHz, 1MB Cache, 6W TDP</td>
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<tr>
<td></td>
<td>E3815: Single Core @1.46GHz, 512KB Cache, 5W TDP</td>
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<tr>
<td></td>
<td>E3800: Quad Core @1.5GHz, 2MB Cache, 6W TDP</td>
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<tr>
<td></td>
<td>E3805: Dual Core @1.1GHz, 1MB Cache, 4W TDP</td>
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<table>
<thead>
<tr>
<th>Max Cores</th>
<th>4</th>
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<table>
<thead>
<tr>
<th>Max Thread</th>
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<table>
<thead>
<tr>
<th>Memory</th>
<th>DDR3L memory soldered on-board</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3845, E3827, E3826, E3825: up to 8GB Dual-Channel DDR3L</td>
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</tr>
<tr>
<td>E3815: up to 4GB Single-Channel DDR3L, 1333MHz</td>
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</tr>
<tr>
<td>E3800: up to 4GB Single-Channel DDR3L, 1066MHz</td>
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<table>
<thead>
<tr>
<th>Graphics</th>
<th>Integrated Intel HD Graphics 4000 series controller</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Dual independent displays supported</td>
</tr>
<tr>
<td></td>
<td>4x independent display support</td>
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<tr>
<td></td>
<td>HW encoding of H.264, MPEG2, MVC and MVC formats</td>
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<tr>
<td></td>
<td>ISA-supported analog and stereo interface</td>
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<tr>
<td></td>
<td>4x independent display interface</td>
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<table>
<thead>
<tr>
<th>Video Interface</th>
<th>1x S/PDIF, 1x HDMI, 1x DVI, 1x LVDS</th>
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</table>

<table>
<thead>
<tr>
<th>Video Resolution</th>
<th>CRT Interface: Up to 2560 x 1600 @ 60Hz</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>LVDS Interface: Up to 1920 x 1200 @ 60Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mass Storage</th>
<th>Optional eMMC, up to 8GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3845, E3827, E3826, E3825, E3815: up to 1x SATA channel</td>
<td></td>
</tr>
<tr>
<td>E3800, E3805: up to 2x SATA channels</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Networking</th>
<th>Gigabit Ethernet controller, makes available a 10 / 100Mbit Ethernet interface</th>
</tr>
</thead>
</table>

| USB             | 4 x USB 2.0 Host ports |

<table>
<thead>
<tr>
<th>Audio</th>
<th>HD Audio codec, Realtek ALC2252</th>
</tr>
</thead>
</table>

| Serial Ports    | 2 x Serial ports (TX / RX / RTS / CTS signals, TTL interface) |

<table>
<thead>
<tr>
<th>Other Interfaces</th>
<th>IDE Bus: 2.5 compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ISA Bus: 2.5 compliant</td>
</tr>
<tr>
<td></td>
<td>Floppy Drive/IDE interface</td>
</tr>
<tr>
<td></td>
<td>4 x SPI, 1x PS/2, 1x PS/2</td>
</tr>
</tbody>
</table>

| Power Supply    | 12V @ 5A, 5V @ 5A (optional) |

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Microsoft® Windows 7 (32 / 64 bit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Microsoft® Windows 8.1 (32 / 64 bit)</td>
</tr>
<tr>
<td></td>
<td>Microsoft® Windows 10 (32 / 64 bit)</td>
</tr>
<tr>
<td></td>
<td>Microsoft® Windows Embedded Standard 7 (32 / 64 bit)</td>
</tr>
<tr>
<td></td>
<td>Microsoft® Windows Embedded Standard 8 (32 / 64 bit)</td>
</tr>
<tr>
<td></td>
<td>Microsoft® Windows Embedded Compact 7</td>
</tr>
</tbody>
</table>

| 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. It is suggested to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated.*
COM-HPC® STANDARD ADVANTAGES

- FOR HIGH END DESIGNS AND MARKETS
- HIGH GRAPHICS COMPUTING
- SUPPORT FOR HIGH-SPEED INTERFACES
- INTEGRATED VIDEO INTERFACES
- "CLIENT" AND "SERVER" VERSIONS

COMPUTER-ON-MODULE APPROACH

Design investment limited to the carrier board
- Scalable and future-proof solutions
- Long-term availability
- Arm and x86 compatibility
- Multi-vendor solutions
- Highly configurable
- Innovative and updatable solutions
- Reduced time-to-market

COM-HPC® SUPPORTED FEATURES

- 2x SoundWire, I²S BaseT (up to 10 Gb)
- 2x MIPI-CSI

- Arm and x86 compatibility
- 8x 25GbE KR3x DDI

- Multi-vendor solutions
- 12x GPIO
- 2x I²C, 2x UART

- 2x SATA

- COM-HPC® SUPPORTED FEATURES
  - HIGH-SPEED INTERFACES
  - Arm and x86 compatibility
  - 8x 25GbE KR3x DDI

- HIGH-END DESIGNS
  - Consolidated standards
  - Interfaces

- HIGH GRAPHICS VERSIONS
  - "SERVER"
  - 2x USB4

- COM-HPC® with 12th Gen Intel® Core™ (formerly Alder Lake - H series)
- COM-HPC® with 11th Gen Intel® Core™ (formerly Tiger Lake-H)

- IMMERSIVE GRAPHICS, ENHANCED AI-PERFORMANCE AND EFFICIENCY IN A STANDARD FORM FACTOR

- PROCESSING POWER, HIGH PERFORMANCE GRAPHICS AND TOP CLASS CONNECTIVITY
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.

Please be aware that the listed temperatures are guidelines and might not reflect the actual operating temperature. For more information, please refer to the specific module documentation.

### Dimensions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM-HPC® Size A</td>
<td>120 x 95 mm (COM-HPC® Size A Form factor, Client pinout)</td>
</tr>
</tbody>
</table>

### Processor

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-1115G4E</td>
<td>Tiger Lake-UP4, Quad Core, up to 4.1GHz in Turbo Boost, 8MB L3 Cache, 30W cTDP - Industrial (w/ Turbo OFF)</td>
</tr>
<tr>
<td>i5-1145G7E</td>
<td>Tiger Lake-UP6, Quad Core, up to 4.4GHz in Turbo Boost, 12MB L3 Cache, 65W cTDP - Industrial (w/ Turbo OFF)</td>
</tr>
<tr>
<td>i7-1185G7E</td>
<td>Tiger Lake-UP6, Quad Core, up to 4.8GHz in Turbo Boost, 20MB L3 Cache, 85W cTDP - Industrial (w/ Turbo OFF)</td>
</tr>
</tbody>
</table>

### Interfaces

<table>
<thead>
<tr>
<th>Interface</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAN</td>
<td>2 x 2.5GbE RJ-45 connectors, 1x 5GB RJ-45 connector</td>
</tr>
<tr>
<td>USB</td>
<td>2 x USB 4.0 / USB 3.2 Gen2x2 ports on Standard Type-C sockets with PD functionality</td>
</tr>
<tr>
<td>Audio</td>
<td>2 x 4-lane CSI-2 interfaces, optional 2x MIPI-DSI, optional 2x DP++ interface, up to 3x DP++ interface, supporting Display Port 1.4a and HDMI 2.0b</td>
</tr>
<tr>
<td>Graphics</td>
<td>2x PCI-e x16 Slot</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 4 x USB 4.0 / USB 3.2 Host ports</td>
</tr>
<tr>
<td>Serial Ports</td>
<td>2 x RS-232/RS-422/RS-485 ports on dedicated pin header</td>
</tr>
<tr>
<td>Power Supply</td>
<td>120W/12V power supply, 9/24VDC input, 480W/24VDC output</td>
</tr>
</tbody>
</table>

### Operating System

<table>
<thead>
<tr>
<th>OS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux</td>
<td>Ubuntu 20.04.5 LTS, Debian 10.10.9, Arch Linux, Ubuntu 16.04.3 LTS, Fedora 28.4.6, FreeBSD 11.3</td>
</tr>
</tbody>
</table>

### Supported Operating Systems

- Ubuntu 18.04.6 LTS
- Debian 10.10.9
- Arch Linux
- Ubuntu 16.04.3 LTS
- Fedora 28.4.6
- FreeBSD 11.3

### Linux Kernel

- Linux 5.10.94
- Linux 5.11.58
- Linux 5.12.30

### Features

- 802.11ac Wi-Fi, Bluetooth 5.1
- 2 x GbE Ethernet ports
- 2 x RS-232/RS-422/RS-485 ports
- 2 x USB 2.0 ports

### Power Consumption

- 65W (maximum)
- 35W (typical)

### Availability

- Publicly available schematics and technical documentation on www.seco.com

### Cross Platform Dev Kit

- Cross-compatible with x86 and Arm COM-HPC® Client modules
- Compatible with Carina and Tiger Lake-UP4 modules

### Development Kit

- Development kit for COM-HPC® Client Modules
- Includes:
  - Cross-Platform Dev Kit compatible with x86 and Arm COM-HPC® Client modules
  - CARINA COM-HPC® Client modules
  - Development Kit for COM-HPC® Modules

### Development Kit for COM-HPC® Modules

- Features:
  - 1x 40-pins 4D-sub connector
  - 3x DVI connectors
  - 2x 16-bit Camera Image Connectors
  - 2x 16-bit DVI connectors
  - 2x 5GB RJ-45 connectors
  - 2x 10GBase-KT interfaces on 10G Type-E connector
  - 2x GbE RJ-45 connectors
  - 2x USB 4.0 / USB 3.2 Gen2x2 ports on Standard Type-C sockets with PD functionality
  - 2x USB 2.0 Host ports on standard Quad Type-A Socket
  - Dual UART connector

### Supported Operating Systems

- Ubuntu 20.04.5 LTS
- Debian 10.10.9
- Arch Linux
- Ubuntu 16.04.3 LTS
- Fedora 28.4.6
- FreeBSD 11.3

### Linux Kernel

- Linux 5.10.94
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- Linux 5.12.30

### Availability

- Publicly available schematics and technical documentation on www.seco.com

### Cross Platform Dev Kit

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  - Cross-Platform Dev Kit compatible with x86 and Arm COM-HPC® Client modules
  - CARINA COM-HPC® Client modules
  - Development Kit for COM-HPC® Modules
BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

TRANSPORTATION

Onboard Ticket Point-of-Sale
CUSTOMER
Provider of turn-key solutions for public transportation

Passenger Information & Advertising Systems
CUSTOMER
Manufacturer of high-resolution dynamic real-time on-board infotainment systems

Intelligent Traffic System
CUSTOMER
Global supplier of intelligent transportation systems

IP Voice System for Air Traffic Controllers
CUSTOMER
Company specialized in design, development and manufacturing of telecommunications solutions

Mining Dump Truck
CUSTOMER
Producer of special vehicles for open-pit and underground mining

INDUSTRIAL AUTOMATION

Servo Controller
CUSTOMER
Manufacturer of industrial automation solutions

Monitoring Station
CUSTOMER
Global manufacturer of solutions for water quality measurement

CNC Machining Center for Lumber
CUSTOMER
Manufacturer of automated machines for wood, stone, and plastic processing

HMI for Precision Welder
CUSTOMER
Manufacturer of precision welding products

CNC Machining Center
CUSTOMER
Manufacturer of production machines
BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

MEDICAL

**ICU Lung Ventilator**
CUSTOMER
Leading manufacturer of medical devices

**Ultrasound**
CUSTOMER
Leading manufacturer of diagnostic imaging solutions

**Industrial Multipurpose System**
CUSTOMER
Leading manufacturer of diagnostic solutions for clinical laboratories

**Dialysis Machine**
CUSTOMER
Leader in medical solutions, services and technologies

**Real-Time Blood Gas Testing System**
CUSTOMER
Global medical diagnostic equipment company

DIGITAL SIGNAGE / INFOTAINMENT

**Room Guide for Meeting Room Management**
CUSTOMER
Manufacturer of communication platforms

**Payment Kiosk for Parking**
CUSTOMER
Supplier of solutions for parking environments

**Automated Bank Machine**
CUSTOMER
Company specialized in the delivery of security-related services

**Bowling Scoring Management System**
CUSTOMER
Innovative bowling equipment provider

**Condominium Digital Notice Board**
CUSTOMER
Provider of services and advertisement for buildings
BECOME INSPIRED BY SECO EXPERTISE
IN DIVERSE APPLICATIONS

SECURITY/SURVEILLANCE

AUV – Autonomous Underwater Vehicle
CUSTOMER
Company specialized in scientific research and technology development

Car Security Gateway
CUSTOMER
Leading company in the field of law enforcement technology

Tablet-Based Unmanned Vehicle Controller
CUSTOMER
Unmanned vehicle manufacturer

Multicomponent UAV Remote Control System
CUSTOMER
Tier one defense contractor

Drone-Mounted Rugged Secure Radio
CUSTOMER
Tier one defense contractor

UTILITIES

Broadcast Equipment
CUSTOMER
Manufacturer of transmitter systems

Controller System for Telco
CUSTOMER
Supplier of telecommunications solutions

IP Telephone Switchboard
CUSTOMER
Manufacturer of terminals for communications over internet

Edge Computing for Gas Pipeline
CUSTOMER
Gas transport service provider

EV Charging Station
CUSTOMER
E-mobility solutions provider
BECOME INSPIRED BY SECO EXPERTISE IN DIVERSE APPLICATIONS

DEVICES

Measuring Device
CUSTOMER
Company specialized in products and solutions for measuring and metering

Smart Dog Collar
CUSTOMER
Jagger & Lewis: company focused on improving households through connected devices

Vacuum Leak Detector
CUSTOMER
Manufacturer of high-end industrial equipment

Autonomous House Cleaning Robot
CUSTOMER
Multinational equipment manufacturer, innovation division

Connected Washing Machine and Industrial Oven
CUSTOMER
Multinational manufacturer of home appliances

MORE FIELDS OF APPLICATION

AGRICULTURE

Agriculture Tractor Equipment
CUSTOMER
Manufacturer of equipment for farming

BUILDING AUTOMATION

7” HMI with Camera for Access Control and People Counting
CUSTOMER
Manufacturer of access control technology

VENDING & COFFEE

Tabletop Coffee Machines & Free-Standing Vending Machines
CUSTOMER
Coffee and vending machine manufacturer
**MYON STANDARD ADVANTAGES**

- **COMPACT FORM FACTOR**
- **IDEAL FOR IOT AND BATTERY-POWERED HANDHELD DEVICES**

Compact form factor  | Very low power consumption  | Long availability for at least 10 years
Pin compatibility guaranteed for successor products  | ARM-based processors from Qualcomm® and NXP
2x 100-pin Hirose DF40 connectors  | High pin compatibility with each other

Available with Linux, Android and Microsoft Windows 10 IoT Core & Enterprise

---

**Myon MicroModule SOM**

Micro CPU module with Snapdragon® 410E

**Processor**
Qualcomm® Snapdragon™ 410E QuadCore ARM Cortex™ A8M, up to 1.2GHz (APQ8006E), ARM Cortex M3

**Memory**
512 MB DDR3

**Video**
OpenGL ES 3.0, OpenCL, DirectX

**LVDS** or MIPI Display (4 channel)

**Power Supply**
USB 2.0 5V

**Audio**
Audio Codec: Stereo Headphone output, Mono Speaker output, Stereo Line-In, Microphone inputs

**Interfaces**
SD/MMC Card, MIPI Camera (2M and 4M)
8 Ports configurable for different interfaces:
GPIO, UART, SPI, LCD, I2S

**Operating System**
Linux

**Dimensions**
48 x 32 x 4.2 mm without antennas
58 x 32 x 4.2 mm with antennas

---

**Myon II**

Micro CPU module with NXP® i.MX 8M Mini & i.MX8M Nano

**Processor**
NXP i.MX 8M Mini Family based on ARM® Cortex®-A53 cores
- general purpose Cortex®-M4 1.2GHz processor
- i.MX 8M Mini Quad - Full featured, 4x Cortex®-A53 cores up to 1.8GHz
- i.MX 8M Mini Solo - Full featured, 1x Cortex®-A53 cores up to 1.5GHz
- i.MX 8M Mini Solo Lite - 1x Cortex®-A53 cores up to 1.8GHz on MPU
- i.MX 8M Mini Dual Lite - 2x Cortex®-A53 cores up to 1.8GHz on MPU
- i.MX 8M Mini Solo Lite - 1x Cortex®-A53 cores up to 1.5GHz on MPU
- i.MX 8M Solo Nano Family based on ARM® Cortex®-A53 cores
  - general purpose Cortex®-M0+ 72MHz processor
- i.MX 8M Solo Nano Quad Lite - 4x Cortex®-A53 cores up to 1.5GHz
- i.MX 8M Solo Nano Full featured, 1x Cortex®-A53 cores up to 1.5GHz
- i.MX 8M Nano Solo - Full featured, 1x Cortex®-A53 cores up to 1.5GHz
- i.MX 8M Nano Quad Lite - 2x Cortex®-A53 cores up to 1.5GHz on MPU
- i.MX 8M Nano Solo Lite - 1x Cortex®-A53 cores up to 1.5GHz on MPU
- i.MX 8M Nano Solo Lite - 1x Cortex®-A53 cores up to 1.5GHz on MPU

**Memory**
- i.MX 8M Mini Family of processors:
  - Vivante GC2100 2D accelerator + GCNanoUltra 3D accelerator
- i.MX 8M Nano Family of processors:
  - Vivante GC7000A, 3D OpenGL
- i.MX 8M Nano Family of processors:
  - Vivante GC7000A, 3D OpenGL

**Graphics**
OpenGL ES 3.0, OpenGL ES 3.1 support

**Resolution**
LVDS, MIPI display (4 channel) Single- or Dual-LVDS

**Operating System**
Linux

**Dimensions**
48 x 32 x 4.2 mm without antennas
58 x 32 x 4.2 mm with antennas

---

**Thank you to the compact form factor ideal for IoT and battery-powered handheld devices**

**Myon I by Keith & Koep**

**Myon II by Keith & Koep**

---

**Available in Industrial Temperature Range**

**Temperature**
-25 ÷ 85°C (Industrial)

**Supply Power**
3.3 ÷ 5.0 VDC

**Interfaces**
- 2x SD/SDIO interface (e.g. for external SD cards)
- 1080p MIPI Camera (4 channel)
- MIPI CSI (4 channel)

**Other**
- GPIOs, UART, SPI, I2C, I2S, SPIF, DMA, MIPI Interface
- PWM
- QSPI
- SPI
- 2x I2C
- I2S
- SPDIF In/Out
- Microphone inputs
- PCIe or USB interfaces (for Myon II)

**Audio**
Audio Codec: Stereo Headphone output, Mono Speaker output, Stereo Line-In, Microphone inputs

**Serial Ports**
- 4x UART

**Power Supply**
5.3 ÷ 5.0 VDC

**Dimensions**
48 x 32 x 4.2 mm

---

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

ConXM by Keith & Koep

HMI with Myon MicroModule SOM technology supporting Myon I, Myon II and Myon II Nano SOMs

i-PAN M7 by Keith & Koep

**Processor**
- Depends on compatible Myon SOMs
  - Qualcomm® Snapdragon™ 410E Cortex A53, QuadCore up to 1.2GHz on Myon I SOM
  - NXP i.MX 8M Mini ARM Cortex A53 up to 1.8 GHz, up to Quad Core, integrated ARM Cortex M4 on Myon II SOM
  - NXP i.MX 8M Nano ARM Cortex A53 up to 1.5 GHz, up to Quad Core, integrated ARM Cortex M7 on Myon II Nano SOM

**Graphics**
- Depends on compatible Myon MicroModule SOMs

**Video Interfaces**
- LVDS, HDMI

**Mass Storage**
- μSD Card Socket

**Networking**
- 10/100 Mbit Ethernet RJ45 Connector
- WLAN 802.11 b/g/n 2.4GHz, Bluetooth via Myon I

**USB**
- USB 2.0 Host, μUSB 2.0 OTG

**Audio**
- Solderpads for Speaker, Headphone, Microphone

**Serial Ports**
- UART via i-MOD extension connector

**Other Interfaces**
- I2C, CAN, Keys via i-MOD extension connectors
- Realtime Clock with Backup Cap
- LED Powerfail Detection

**Power Supply**
- Industrial ±12 up to 24V supply / Power over Ethernet (POE) on request

**Operating System**
- Microsoft Windows 10 IoT
- Android

**Operating Temperature**
- -20 ÷ 70°C

**Dimensions**
- 176.0 x 108.5 x 28 mm (include housing)

---

**Powerfail Detection**
- Upon customer to consider specific cooling solutions for the final system.
Trizeps SODIMM SOM

Long availability for at least 10 years
ARM-based processors from NXP
Reduced development time with cost-effective production
High computing power with relatively small dimensions

TRIZEPS STANDARD ADVANTAGES
SODIMM 200 connectors
High pin compatibility with each other

Reduced development time with cost-effective production
High computing power with relatively small dimensions
Long availability for at least 10 years
Pin compatibility for successor products
ARM-based processors from NXP
High pin compatibility with each other
Available with Linux, Android and Microsoft Windows 10 IoT Core & Enterprise
High-performance iMX6 CPU module with 2 Ethernet interfaces and additional Cortex M4 co-processor

- Processor: NXP i.MX 6SoloX, SingleCore Cortex-A9 @ 1GHz, Cortex-M4 core @ 227MHz
- Memory: 1x 1GB LPDDR3, 2 32-bit interfaces
- Video Interfaces: HDMI, MIPI display (4 channel)/Single-LVDS, LCD 24 Bit RGB
- Networking: 1x 100 Mbit Ethernet RJ45 Connector, 1x 1000 Mbit Ethernet RGMII PHY
- Audio: AC'97 Audio Codec with 45 I/O pins, Touch and 4x 12 Bit ADC (x2 comparator inputs, battery-monitoring); Stereo: Line-in, Mic-in, Speaker-out, Headphone out
- Other Interfaces: 2x CAN, SPI, SDIO, USB�-2.0 Host, USB�-2.0 OTG, SPI, SDI, SPI, I²C
- Power Supply: 3.3 VDC (SDIO/MMC) 5 VDC and battery (PA11)
- Operating Temperature: 40 ~ -10°C (Industrial)
- Dimensions: 68 x 36 x 7.6 mm

*No 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 modules for more details. Actual temperature will widely depend on application, enclosure and environment. Upon customer to consider specific cooling solutions for the final system.

---

Multifunctional Carrier Board which supports the complete functions of the Trizeps VII SOMs

- Processor: NXP i.MX 6Quad, Dual-Cortex-A9, SingleCore Cortex-A7, Cortex-M4 core @ 227MHz
- Memory: 1x 1GB LPDDR3, 2x 32-bit interfaces
- Video Interfaces: HDMI, MIPI display, LCD 24 Bit RGB
- Networking: 2x 10/100 Mbit Ethernet RJ45 Connector, 1x 1000 Mbit Ethernet RGMII PHY
- Audio: AC’97 Audio Codec with 45 I/O pins, Touch and 4x 12 Bit ADC (x2 comparator inputs, battery-monitoring); Stereo: Line-in, Mic-in, Speaker-out, Headphone out
- Power Supply: 3.3 VDC (SDIO/MMC) 5 VDC and battery (PA11)
- Operating Temperature: -10~10°C
- Dimensions: 68 x 36 x 7.6 mm

*No 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 environment. Upon customer to consider specific cooling solutions for the final system.

---

Carrier Board for Trizeps VII

- Processor: NXP i.MX 8Quad, Dual-Cortex-A9, SingleCore Cortex-A7, Cortex-M4 core @ 227MHz
- Memory: 1x 1GB LPDDR3, 2x 32-bit interfaces
- Video Interfaces: HDMI, MIPI display, LCD 24 Bit RGB
- Networking: 2x 10/100 Mbit Ethernet RJ45 Connector, 1x 1000 Mbit Ethernet RGMII PHY
- Audio: AC’97 Audio Codec with 45 I/O pins, Touch and 4x 12 Bit ADC (x2 comparator inputs, battery-monitoring); Stereo: Line-in, Mic-in, Speaker-out, Headphone out
- Power Supply: 3.3 VDC (SDIO/MMC) 5 VDC and battery (PA11)
- Operating Temperature: -10~10°C
- Dimensions: 68 x 36 x 7.6 mm

*No 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 environment. Upon customer to consider specific cooling solutions for the final system.
Carrier Board for Trizeps SODIMM SOMs

Carrier Board for Trizeps VII, Trizeps VIII, Trizeps VIII Mini, Trizeps VIII Nano and Trizeps VIII Plus SOMs

pcOnXS by Keith & Koep

Defined by compatible Trizeps SODIMM SOMs:
- NXP i.MX 6 Quad, Dual, DualLite, Solo, Solo ARM Cortex A8 up to 1.0 GHz on Trizeps VII SOM
- NXP i.MX 8M ARM Cortex A8 up to 1.5 GHz, up to Quad Core, integrated ARM Cortex M4 on Trizeps VII SOM
- NXP i.MX 8M Mini ARM Cortex A8 up to 1.8 GHz, up to Quad Core, integrated ARM Cortex M4 on Trizeps VII Mini SOM
- NXP i.MX 8M Nano ARM Cortex A8 up to 1.5 GHz, up to Quad Core, integrated ARM Cortex M7 on Trizeps VII Nano SOM
- NXP i.MX 8M Plus ARM Cortex A8 up to 1.8 GHz, up to Quad Core, integrated ARM Cortex M7 on Trizeps VII Plus SOM
- NXP i.MX 8M Plus ARM Cortex A9 up to 1.8 GHz, up to Quad Core, integrated ARM Cortex M7 on Trizeps VIII Plus SOM

LEDs, Dual USB, HDMI (through Trizep VIII Plus, Trizeps VIII Plus Plus)

*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 environment. Upon customer to consider specific cooling solutions for the final system.

Available in Industrial Operational Temperature Range

118.5 mm x 84.0 mm x 43.0 mm

Developer Kit

HMI for Trizeps SODIMM SOMs

SODIMM-200 Carrier Board supporting Trizeps VII and Trizeps VIII Nano/Mini/Plus SOMs

pcConXS by Keith & Koep

Defined by compatible Trizeps SODIMM SOMs:
- NXP i.MX 6 Quad, Dual, DualLite, Solo, Solo ARM Cortex A8 up to 1.0 GHz on Trizeps VII SOM
- NXP i.MX 8M ARM Cortex A8 up to 1.5 GHz, up to Quad Core, integrated ARM Cortex M4 on Trizeps VII SOM
- NXP i.MX 8M Mini ARM Cortex A8 up to 1.8 GHz, up to Quad Core, integrated ARM Cortex M4 on Trizeps VII Mini SOM
- NXP i.MX 8M Nano ARM Cortex A8 up to 1.5 GHz, up to Quad Core, integrated ARM Cortex M7 on Trizeps VII Nano SOM
- NXP i.MX 8M Plus ARM Cortex A8 up to 1.8 GHz, up to Quad Core, integrated ARM Cortex M7 on Trizeps VII Plus SOM
- NXP i.MX 8M Plus ARM Cortex A9 up to 1.8 GHz, up to Quad Core, integrated ARM Cortex M7 on Trizeps VIII Plus SOM

USB 2.0 Host, USB 2 OTG, USB 2.0 Host interface, USB 2.0 Interface

Supported Operating Systems:
- Linux
- Android

Available in Industrial Operational Temperature Range

133.6 x 93.5 x 25.0 mm

*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.
### HMI with Trizeps SODIMM SOM technology which supporting Trizeps CPU modules

**i-PAN7 by Keith & Koep**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Depends on compatible Trizeps SODIMM SOMs, i.e.</td>
</tr>
<tr>
<td></td>
<td>• NXP i.MX 6 Quad, Dual, DualLite, Solo, SoloX ARM Cortex A9 up to 1.0 GHz on Trizeps VII SOM</td>
</tr>
<tr>
<td><strong>Graphics</strong></td>
<td>Depends on compatible Trizeps SODIMM SOMs</td>
</tr>
<tr>
<td><strong>Video Resolution</strong></td>
<td>7.0 inch 38bpp Display, resolution 800 x 480</td>
</tr>
<tr>
<td><strong>Mass Storage</strong></td>
<td>SD Card Socket</td>
</tr>
<tr>
<td><strong>Networking</strong></td>
<td>10/100 Mbit Ethernet RJ45 connector</td>
</tr>
<tr>
<td></td>
<td>Wireless functionalities depend on Trizeps SODIMM SOMs</td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>USB 2.0 Host, USB 2.0 OTG</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>3.5 mm Headed Jack for Microphone and Headphone</td>
</tr>
<tr>
<td></td>
<td>Solderpads for Speaker (2.6 W Audio Amplifier), Headphone, Microphone</td>
</tr>
<tr>
<td><strong>Serial Ports</strong></td>
<td>3x UART via extension connector</td>
</tr>
<tr>
<td><strong>Other Interfaces</strong></td>
<td>Inputs/Outputs, U2C, CAN, SDIO, Stereo Headphone Output, Microphone</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>Industrial +12 up to 24V supply</td>
</tr>
<tr>
<td><strong>Operating System</strong></td>
<td>Microsoft Windows Embedded Compact</td>
</tr>
<tr>
<td></td>
<td>Linux</td>
</tr>
<tr>
<td></td>
<td>Android</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>15 - 70°C / -20 - 85°C on request</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>189.4 x 108.4 x 18.2 mm (include housing)</td>
</tr>
</tbody>
</table>

*All carrier board components must remain within the operating temperature at any and all times, including start-up; carrier operating temperatures is independent of the module installed. Please refer to the specific module for more details. Actual temperature will widely depend on application, enclosures and/or environment. Upon customer to consider specific cooling solutions for the final system.**
**SBC with 11th Gen Intel® Core™ and Celeron® (formerly Tiger Lake UP3)**

**ICARUS**

**Processor**
- Intel® Core™ i7-1185G7E Quad Core 8-38.5GHz (360Tq) Turbo with HT, 12MB Cache, 28W TDP (12W cTDP)
- Intel® Core™ i5-1145G7E Quad Core 8-38.5GHz (360Tq) Turbo with HT, 12MB Cache, 28W TDP (12W cTDP)
- Intel® Core™ i3-1115G4E Dual Core 4-38.5GHz (360Tq) Turbo with HT, 6MB Cache, 28W TDP (12W cTDP)
- Intel® Celeron® J6413 Dual Core 2-38.5GHz (360Tq) Turbo with HT, 2MB Cache, 10W TDP

**Memory**
- Up to 64GB with IBECC supported only with Intel® Core™ Industrial SoCs

**Video**
- Support for up to 4K simultaneous 1080p streams ingestion

**Software**
- Microsoft® Windows 10 IoT Enterprise LTSC

**Power**
- Cabled coin cell battery for RTC

**Dimensions**
- 100 x 72 mm (3.93” x 2.83”)

**Temperature Range**
- -40°C - +85°C (Industrial version)
- 0°C - +60°C (Commercial version)

---

**SBC with Intel® Atom™ X6000E, Pentium® and Celeron® J / N Series (formerly Elkhart Lake)**

**PRISMA**

**Processor**
- Intel® Atom™ x6425RE Quad Core @1.9GHz (no Turbo) 12W TDP w/ IBECC, IHS and TCC – Industrial
- Intel® Atom™ x6414RE Quad Core @1.5GHz (no Turbo) 9W TDP w/ IBECC, IHS and TCC – Industrial
- Intel® Atom™ x6212RE Dual Core @1.2GHz (no Turbo) 6W TDP w/ IBECC, IHS and TCC – Industrial
- Intel® Atom™ x6425E Quad Core @2.0GHz (3GHz Turbo) 12W TDP w/ IBECC and IHS - Industrial
- Intel® Atom™ x6415E Quad Core @1.7GHz (no Turbo) 9W TDP w/ IBECC and TCC - Industrial
- Intel® Atom™ x6420E Quad Core @1.8GHz 12W TDP w/ IBECC and TCC - Industrial

**Memory**
- Optional eMMC 5.1 drive soldered on-board

**Video**
- HD audio codec / Chrome Logic: Cl4430
- Mic In, Line Out and SPDIF Out, on pin header

**Software**
- Optional Windows 10 IoT Enterprise 100U

**Power**
- Cabled coin cell battery for RTC

**Dimensions**
- 98 x 72 mm (3.85” x 2.83”)

---

**SBC ADVANTAGES**

- Best Price Point for Low Volume Systems
- Very Low Time-to-Market
- Reduced Off-The-Shelf

**Embedded NUC™**

**Pico-ITX**

**other SBCs**
### High-performance application processor designed for digital multimedia applications

<table>
<thead>
<tr>
<th>Processor</th>
<th>Rockchip PX30 processor, 4x Cortex®-A53 cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>4096 MB + 256 MB, 4x DDR3L 1866 RAM @ 1.5V</td>
</tr>
<tr>
<td>Graphics</td>
<td>Mali-240 GPU with High performance dedicated 2D processor</td>
</tr>
<tr>
<td>Audio</td>
<td>4x stereo Audio (2x stereo Audio &amp; 2x Microphone)</td>
</tr>
<tr>
<td>Interfaces</td>
<td>2x USB 3.0, 2x USB 2.0, 2x HDMI, 2x DisplayPort, 2x Audio Out</td>
</tr>
<tr>
<td>Power</td>
<td>3+0.7W (including start-up)</td>
</tr>
</tbody>
</table>

**Dimensions:** 146 x 102 mm (3.5” form factor)

**Temperature:**

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

**Supply:**

- **Power:** +12VDC ÷ +24VDC
- **GPOs:** 16x GPOs @3.3V
- **I/O Connectors:** with 4x GPIOs / 1x UART / 1x RS-485 / 4x SPI / 1x CAN + on-board ultra-low power RTC

**System:**

- **OS:** Android, Yocto, Linux
- **CPU:** Rockchip PX30 processor, 4x Cortex®-A35 cores
- **Memory:** 4GB LPDDR4 (32-bit interface)
- **Graphics:** Mali-240 GPU

**Networking:**

- **Ethernet:** 2x Gigabit Ethernet ports
- **USB:** 2x USB 3.0 Type-A sockets, 2x USB 2.0 Type-A sockets
- **Bluetooth:** BLE 5.0
- **Wi-Fi:** 802.11ac, 802.11a/b/g/n (radio)

**Mass Storage:**

- **eMMC:** 256 MB, 512 MB
- **QSPI Flash:** 2Kb I2C Flash, 4+1Kb of Soldered-down Flash memory
- **Soldered-down LPDDR4 memory @128MBx8, 32-bit interface, up to 4x4GB |

**Fast Ethernet:**

- **Xilinx Ethernet**: 1x 10/100/1000Base-T Ethernet connector

**Other:**

- **I2C:** 2x on-board
- **I2S:** 2x on-board
- **i.MX 8M Mini:** 2x audio codec, 2x MIC input

**Power:**

- **Low Power RTC:** Trusted Secure Element
- **72x 0.18µm Digital blocks, 66x 0.18µm Digital blocks, 6x 0.18µm Digital blocks

**Operating System:**

- **Linux:** Android, Yocto
- **RTOS:** UC/OS II

**Dimensions:**

- **Height (with connector and Soldered-down Flash):** 146 x 102 mm (3.5” form factor)
- **Height (without connector):** 146 x 102 mm (3.5” form factor)

---

### Full connectivity on powerful AMD Ryzen® platform

<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD Ryzen™ Embedded V1000 being SoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>4+1GB RDIMM, 2x 4Gb, 4x DDR4 2133 MHz @ 1.5V</td>
</tr>
<tr>
<td>Graphics</td>
<td>AMD Radeon™ VEGA with up to 11 Compute Units</td>
</tr>
<tr>
<td>Audio</td>
<td>2x Stereo Audio Out on internal header</td>
</tr>
<tr>
<td>Interfaces</td>
<td>4x PCIe 3.0 slots connected 6x33 pin connector</td>
</tr>
<tr>
<td>Power</td>
<td>10W (including start-up)</td>
</tr>
</tbody>
</table>

**Dimensions:** 146 x 102 mm (3.5” form factor)

**Temperature:**

- **Operating:** -40°C ÷ +85°C (Industrial version, only for future SoCs in extended Temperature range)
- **Commercial:** 0°C ÷ +60°C

**Supply:**

- **Power:** +12VDC ÷ +24VDC
- **GPOs:** 8-channel timer connector
- **I/O Connectors:** with 2x SPI / 1x UART / 1x CAN + on-board ultra-low power RTC

**System:**

- **OS:** Linux (embedded)
- **CPU:** AMD Ryzen™ Embedded R1000 / V1000, 4 Core Dual Core (with GPU AMD Radeon™ Vega, Dual Core Dual Thread with 3.25GHz (1.65.3); TOP: 55-54W, 4 Core Dual Thread with 3.6GHz (2.1); TOP: 125-25W
- **Graphics:** AMD Radeon™ VEGA with up to 11 Compute Units
- **Memory:** 4GB LPDDR4 memory, up to 1333 MHz @ 1.5V

**Networking:**

- **Ethernet:** 1x 10/100/1000Base-T Ethernet connector
- **USB:** 1x USB 2.0 Type-A socket (interface shared with Ethernet connector)
- **Audio:** 1x Audio Out + 2x Mic-In interfaces on internal header

**Mass Storage:**

- **eMMC:** 16GB, 32GB
- **QSPI NOR Flash:** Soldered on-board
- **QSPI Flash:** 2Kb I2C Flash

**Other:**

- **I2C:** 2x on-board
- **I2S:** 2x on-board
- **i.MX 8M Mini:** 2x Microphone input, 2x Line In audio codec

**Power:**

- **Low Power RTC:** Embedded GC7000Lite

**Operating System:**

- **Linux:** Android, Yocto, Linux
- **RTOS:** UC/OS II

**Dimensions:**

- **Height (with connector):** 146 x 102 mm (3.5” form factor)
- **Height (without connector):** 146 x 102 mm (3.5” form factor)

---

### Compact Size & High Performance SBC with a multi-core SoC

<table>
<thead>
<tr>
<th>Processor</th>
<th>NXP i.MX 8X3.5&quot; SoC with Quad Arm Cortex-A53 Cores + 1x Cortex®-M4F core for real-time processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>1x 1GB LPDDR4 (1866 MHz) + 4x eMMC 32GB, 64GB</td>
</tr>
<tr>
<td>Graphics</td>
<td>ADM73</td>
</tr>
<tr>
<td>Audio</td>
<td>2x Speaker Outputs (1x Amplified mono, 1x Line Out)</td>
</tr>
<tr>
<td>Interfaces</td>
<td>2x 10/100/1000Base-T Ethernet connectors, 2x USB 3.0 Type-A sockets, 2x USB 2.0 Type-A sockets</td>
</tr>
<tr>
<td>Power</td>
<td>10W (including start-up)</td>
</tr>
</tbody>
</table>

**Dimensions:** 146 x 102 mm (3.5” form factor)

**Temperature:**

- **Operating:** -40°C ÷ +85°C (Industrial version, only for future SoCs in extended Temperature range)
- **Commercial:** 0°C ÷ +60°C

**Supply:**

- **Power:** +12VDC ÷ +24VDC
- **GPOs:** 4x GPIOs / 1x UART / 4x SPI / 1x CAN + on-board ultra-low power RTC

**System:**

- **OS:** Linux (embedded)
- **CPU:** NXP i.MX 8X3.5" SoC with Quad Arm Cortex-A53 Cores + 1x Cortex®-M4F core for real-time processing
- **Memory:** 1GB LPDDR4 memory, up to 128MBx8, 32-bit interface
- **Graphics:** NXP i.MX 8X3.5" SoC with Quad Arm Cortex-A53 Cores + 1x Cortex®-M4F core for real-time processing

**Networking:**

- **Ethernet:** 2x Gigabit Ethernet ports
- **USB:** 2x USB 3.0 Type-A sockets, 2x USB 2.0 Type-A sockets
- **Audio:** 2x Amplified mono Speaker Outputs

**Mass Storage:**

- **eMMC:** 32GB, 64GB
- **QSPI Flash:** 2Kb I2C Flash
- **QSPI NOR Flash:** Soldered on-board

**Other:**

- **I2C:** 2x on-board
- **I2S:** 2x on-board
- **USB:** 2x USB 3.0 Type-A sockets (interface shared with Ethernet connector)

**Power:**

- **Low Power RTC:** Embedded GC7000Lite

**Operating System:**

- **Linux:** Android, Yocto, Linux
- **RTOS:** UC/OS II

**Dimensions:**

- **Height (with connector):** 146 x 102 mm (3.5” form factor)
- **Height (without connector):** 146 x 102 mm (3.5” form factor)
AI-ENABLED and/or environment. Upon customer to consider application-specific cooling solutions for the final system to keep the heatspreader temperature in the range indicated. Actual temperature will widely depend on application, enclosure and/or environment. *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.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Operating Temperature Range</th>
<th>Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>164 x 320 mm (6.5&quot; x 12.6&quot;)</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>(-20°C ÷ +85°C) (Extended Temperature range)</td>
<td></td>
</tr>
<tr>
<td>Power Consumption</td>
<td>1.5W (Typical)</td>
<td></td>
</tr>
</tbody>
</table>

**x86 solution designed for IoT edge computing in harsh environments**

**THEMIS**

- Processor: Intel® Atom™ x5-Z8350 Dual Core 1.49GHz Burst 1.88GHz, 2MB L2
- Memory: up to 2GB LPDDR3 (with microSD slot)
- Graphics: HD Graphics 400
- Interfaces: HDMI, RJ45, microSD, USB 2.0, Audio (Line Out)
- Other Features: Built-in quad-core Cortex-A7 CPU, up to 1.3GHz

**ADLEER**

- Processor: Intel® Atom™ x5-Z8350 Quad Core 1.49GHz Burst 1.88GHz, 2MB L2
- Memory: up to 2GB LPDDR3 (with microSD slot)
- Graphics: HD Graphics 500
- Interfaces: HDMI, RJ45, microSD, USB 2.0, Audio (Line Out)
- Other Features: Built-in quad-core Cortex-A7 CPU, up to 1.3GHz

**The Right Balance of Graphic/Computing Performance and Cost**

**SOLON**

- Processor: Rockchip RK3399 processor, 2x Cortex®-A72 NP cores & 4x Cortex®-A53 M7 Cores, up to 1.8GHz; 4x64-bit architecture
- Memory: Quad core up to 1.5GHz
- Graphics: Adreno 530
- Interfaces: HDMI, USB power, MicroSD, Audio (Line Out)
- Other Features: 4K resolution

**ALBION**

- Processor: NXP® i.MX 8M Family, based on Arm® Cortex® A57/M53 MCUs + Cortex® M4
- Memory: Quad core up to 1.7GHz
- Graphics: Mali®-460 MP4
- Interfaces: HDMI, USB power, MicroSD, Audio (Line Out)
- Other Features: 4K resolution

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

**ATEL**

- Processor: Rockchip RK3399 processor, 2x Cortex®-A72 NP cores & 4x Cortex®-A53 M7 Cores, up to 1.8GHz; 4x64-bit architecture
- Memory: Quad core up to 1.5GHz
- Graphics: Adreno 530
- Interfaces: HDMI, USB power, MicroSD, Audio (Line Out)
- Other Features: 4K resolution

**BRENNIS**

- Processor: NXP® i.MX 8M Family, based on Arm® Cortex® A57/M53 MCUs + Cortex® M4
- Memory: Quad core up to 1.7GHz
- Graphics: Mali®-460 MP4
- Interfaces: HDMI, USB power, MicroSD, Audio (Line Out)
- Other Features: 4K resolution

**ALBION**

- Processor: NXP® i.MX 8M Family, based on Arm® Cortex® A57/M53 MCUs + Cortex® M4
- Memory: Quad core up to 1.7GHz
- Graphics: Mali®-460 MP4
- Interfaces: HDMI, USB power, MicroSD, Audio (Line Out)
- Other Features: 4K resolution

**ATEL**

- Processor: Rockchip RK3399 processor, 2x Cortex®-A72 NP cores & 4x Cortex®-A53 M7 Cores, up to 1.8GHz; 4x64-bit architecture
- Memory: Quad core up to 1.5GHz
- Graphics: Adreno 530
- Interfaces: HDMI, USB power, MicroSD, Audio (Line Out)
- Other Features: 4K resolution

**BRENNIS**

- Processor: NXP® i.MX 8M Family, based on Arm® Cortex® A57/M53 MCUs + Cortex® M4
- Memory: Quad core up to 1.7GHz
- Graphics: Mali®-460 MP4
- Interfaces: HDMI, USB power, MicroSD, Audio (Line Out)
- Other Features: 4K resolution
**SATA SSD and WWAN functionalities share the same slot and are therefore**
only provided in the dual slot models. Upon customer request, consider application-specific cooling solutions for the final enclosure and/or environment.

*Measured at any point of SECO standard heatspreader for this product, during any and all times (including start-up). Actual temperatures will widely depend on application, enclosure size 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 and expandable full industrial x86 eNUC SBC**

<table>
<thead>
<tr>
<th>Model</th>
<th>ALVIN</th>
<th>HAGAR</th>
<th>NOLAN</th>
<th>DORIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Atom™ X / Celeron™ 5 / Pentium™ N Series</td>
<td>Intel® Atom™ x5-Z8500</td>
<td>Intel® Pentium® 4715</td>
<td>NPI-LMX6 Processor</td>
</tr>
<tr>
<td>Memory</td>
<td>2 x DDR3L SO-DIMM Slots with Dual Channel Support</td>
<td>1 x DDR3L SO-DIMM Slot</td>
<td>1 x DDR3L SO-DIMM Slot</td>
<td>NPI-LMX6 Processor</td>
</tr>
<tr>
<td>Video</td>
<td>2 x Gigabit Ethernet ports</td>
<td>2 x Gigabit Ethernet ports</td>
<td>2 x Gigabit Ethernet ports</td>
<td>2 x Gigabit Ethernet ports</td>
</tr>
<tr>
<td>Audio</td>
<td>1 x PCI-e x1 port on M.2 Connectivity Slot</td>
<td>1 x PCI-e x1 port on M.2 Connectivity Slot</td>
<td>1 x PCI-e x1 port on M.2 Connectivity Slot</td>
<td>1 x PCI-e x1 port on M.2 Connectivity Slot</td>
</tr>
<tr>
<td>Networking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Limitless Embedded applications

Modularly expandable ready to use Single Board Computer (SBC)

Pico-ITX SBC with Intel® Atom® E3830 (formerly Bay Trail)

Processor
- INTEL® Atom™ E3830 Dual Core 1.86 GHz, 2MB Cache, 75W TDP
- INTEL® Atom™ E3815 Dual Core 1.46 GHz, 2MB Cache, 5W TDP
- INTEL® Atom™ E3827 Quad Core 1.33 GHz, 4MB Cache, 7W TDP
- INTEL® Atom™ E3845 Quad Core 1.90 GHz, 4MB Cache, 10W TDP

Max Cores
- 4

Max Threads
- 4

Memory
- Up to 8GB on DDR3L 1333 MHz (DSO8), with E3845 and E3827, DSO7, DSO6 (for others)

Graphics
- Integrated Intel HD Graphics 4000 series controller (not for E3845 and E3827)

Video Interfaces
- Single / Dual Channel 18- / 24-bit LVDS connector

Video Resolution
- HDMI: resolution up to 1920 x 1080
- LVDS, resolution up to 2048 x 1536

Mass Storage
- Optional mSATA SSD in standard PCIe x4 slot

Networking
- 2 x USB 3.0 Host ports on Dual Type-A socket
- 1 x 20-pin Header connector on pin 1-20 connector
- 1 x USB 2.0 Host port 20-pin connector

PCI-e
- Available

Audio Codec
- Optional HD Audio Codec Cirrus Logic CS4207

Other Interfaces
- Switch / LED Front Header
- Connector with 15-pin D-sub connector

Serial Ports
- 2 x optional RS-232/RS-422/RS-485 Serial ports on internal pin header

Power Supply
- 12Vc ± 5%, 1% RTC Battery in internal power connector

Operating System
- Microsoft Windows 7 / 8 / 10 (64-bit)
- Microsoft® Linux (32/64 bit)
- Microsoft® Windows 98 SE
- Microsoft Windows Embedded Standard 7 / 12 (64-bit)
- Microsoft® Windows Embedded Compact 7 Linux (128-bit)

Operating Temperature
- 0° C to +60° C

Dimensions
- 100 x 100 x 29 (3.93" x 3.93"

*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.

Modular SBC with NXP LMX8M Mini

Processor
- NXP® LMX8 M Mini Family based on ARM® Cortex®-A53 cores + general purpose Cortex®-A9 400MHz processor

Max Cores
- 4

Max Threads
- 4

Memory
- up to 8 GB 32-bit LPDDR4
- 1x 20-pin Header connector on pin 1-20 connector

Graphics
- SC-20 2D accelerator + QGFX 3D accelerated Embedded VPU (not for low power processors)

Video Interfaces
- MIPI-CSI Camera interface connector
- LVDS Single/Dual Channel connector

Video Resolution
- Up to 1080p60/24fps

Mass Storage
- Boardref B 4 Bit mini USB Card Socket or onboard 8 Bit mini eMMC, microSD

Networking
- 1x Gbit Ethernet interfaces
- 1x 10/100/1000 Ethernet, 1x Gigabit Ethernet
- 1x 2 USB 2.0 Type-A
- 1x USB 2.0 Type-4A

USB
- Audio Codec
- System Connector 3: Power-Supply, 2x UART or SPI, DIO, USB, SDIO, PMI-52 (24-pin), GPIO, GPIO 12
- System Connector 2: Power-Supply, 2x UART, DIO, SPI, I2C, USB, Speaker, Headphone, Line-in, Microphone, SMTP, SOC 125, SOC Ethernet (RJ-45), GPIO
- PW-20: FFC Connectors - MPO (UIRS231X800), micro USB2.0, HDMI/Displayport (ULH585P), MIPI-CSI, Camera, Speaker

Power Supply
- 12 / 24V
- Windows 10 / 7

Operating System
- Linux Debian
- LinuXtor Android

Operating Temperature
- 40° C ~ 85° C (Industrial), -30°C ~ 85°C (Extended Consumer), 0° ~ 70°C (Commercial)

Dimensions
- 95 x 95 x 20.3 (3.74 x 3.74 x 0.8"

*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.
### Dimensions

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BI-DIRECTIONAL</strong></td>
<td><strong>BI-DIRECTIONAL</strong></td>
</tr>
<tr>
<td><strong>37x273</strong></td>
<td><strong>37x273</strong></td>
</tr>
<tr>
<td><strong>113.0 x 18.0 x 47.0 mm</strong></td>
<td><strong>159.0 x 18.0 x 80.0 mm</strong></td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td><strong>Temperature</strong></td>
</tr>
<tr>
<td><strong>Operating</strong></td>
<td><strong>Operating</strong></td>
</tr>
<tr>
<td><strong>0°C ÷ +60°C</strong></td>
<td><strong>0°C ÷ +60°C</strong></td>
</tr>
</tbody>
</table>

### Processor

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td><strong>Processor</strong></td>
</tr>
<tr>
<td>NXP LM66 Family, based on ARM® Cortex®-A9 processors.</td>
<td>NXP LM66 Family, based on ARM® Cortex®-A9 processors.</td>
</tr>
<tr>
<td>LMK66 Solo - Single core up to 1 GHz</td>
<td>LMK66 Dual Lite - Dual core up to 1 GHz per core</td>
</tr>
<tr>
<td>LMK66 Dual Lite - Dual core up to 1 GHz per core</td>
<td>LMK66 Quad - Dual core up to 1 GHz per core</td>
</tr>
</tbody>
</table>

### Memory

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Memory</strong></td>
<td><strong>Memory</strong></td>
</tr>
<tr>
<td>1 GB 32-bit DDR3L</td>
<td>1 GB 64-bit DDR4</td>
</tr>
</tbody>
</table>

### Graphics

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Graphics</strong></td>
<td><strong>Graphics</strong></td>
</tr>
<tr>
<td>2D graphics accelerator</td>
<td>Integrated Graphics, with up to 3 separate HW accelerators for 2D, OpenGL® ES 2.0 (2D OpenVG™), HW encoding of MPEG-4, H.263 V2, H.264, VP8, H.264, Dual HDMI encoding of MPEG-4, H.263, H.264, Dual HDMI interface</td>
</tr>
</tbody>
</table>

### Video Interfaces

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Interfaces</strong></td>
<td><strong>Video Interfaces</strong></td>
</tr>
<tr>
<td>24-bit parallel RGB interface</td>
<td>24-bit parallel RGB interface</td>
</tr>
<tr>
<td>18-bit parallel RGB interface</td>
<td>18-bit parallel RGB interface</td>
</tr>
</tbody>
</table>

### Networking

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Networking</strong></td>
<td><strong>Networking</strong></td>
</tr>
<tr>
<td>1x 1GOMEdther</td>
<td>1x 1GOMEdther</td>
</tr>
<tr>
<td>1x USB 2.0 Type-A</td>
<td>1x USB 2.0 Type-A</td>
</tr>
</tbody>
</table>

### Power Supply

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
<td><strong>Power Supply</strong></td>
</tr>
<tr>
<td>1x speaker (connector), 1 W RMS (8 Ω) parallel to internal speaker</td>
<td>1x speaker (connector), 1 W RMS (8 Ω) parallel to internal speaker</td>
</tr>
<tr>
<td>2x RS-232, RS-485</td>
<td>2x RS-232, RS-485</td>
</tr>
</tbody>
</table>

### Mass Storage

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mass Storage</strong></td>
<td><strong>Mass Storage</strong></td>
</tr>
<tr>
<td>eMMC: 4 GB MLC</td>
<td>eMMC: 4 GB MLC</td>
</tr>
</tbody>
</table>

### Audio

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audio</strong></td>
<td><strong>Audio</strong></td>
</tr>
<tr>
<td>1x speaker (connector), 1 W RMS (8 Ω)</td>
<td>1x speaker (connector), 1 W RMS (8 Ω)</td>
</tr>
<tr>
<td>1x USB 2.0 OTG micro-AB</td>
<td>1x USB 2.0 OTG micro-AB</td>
</tr>
</tbody>
</table>

### Supply

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
<th>SBC with NXP LM66</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supply</strong></td>
<td><strong>Supply</strong></td>
</tr>
<tr>
<td>9 – 32 VDC</td>
<td>9 – 32 VDC</td>
</tr>
</tbody>
</table>

### Video

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Video</strong></td>
<td><strong>Video</strong></td>
</tr>
<tr>
<td>1x CAN (ISO11898)</td>
<td>1x CAN (ISO11898)</td>
</tr>
<tr>
<td>1x HDMI interface</td>
<td>1x HDMI interface</td>
</tr>
</tbody>
</table>

### Resolution

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
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</thead>
<tbody>
<tr>
<td><strong>Resolution</strong></td>
<td><strong>Resolution</strong></td>
</tr>
<tr>
<td>Up to 1920x1080p60, 24bpp</td>
<td>Up to 1920x1080p60, 24bpp</td>
</tr>
<tr>
<td>Up to 1024x600, 18bpp</td>
<td>Up to 1024x600, 18bpp</td>
</tr>
</tbody>
</table>

### Interfaces

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Interfaces</strong></td>
<td><strong>Interfaces</strong></td>
</tr>
<tr>
<td>1x 100MbEthernet</td>
<td>1x 100MbEthernet</td>
</tr>
<tr>
<td>Up to 10/100BaseT</td>
<td>Up to 10/100BaseT</td>
</tr>
</tbody>
</table>

### Mass Storage

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<tr>
<td><strong>Mass Storage</strong></td>
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</tr>
<tr>
<td>eMMC: 4 GB MLC</td>
<td>eMMC: 4 GB MLC</td>
</tr>
<tr>
<td>SD slot: 4 bit MMC/SDIO/SD/SDHC</td>
<td>SD slot: 4 bit MMC/SDIO/SD/SDHC</td>
</tr>
</tbody>
</table>

### Operating System

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating System</strong></td>
<td><strong>Operating System</strong></td>
</tr>
<tr>
<td>Yocto</td>
<td>Yocto</td>
</tr>
</tbody>
</table>

### Operating Temperature

<table>
<thead>
<tr>
<th>SBC with NXP LM66</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Temperature</strong></td>
<td><strong>Operating Temperature</strong></td>
</tr>
<tr>
<td>0°C ÷ +60°C</td>
<td>0°C ÷ +60°C</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.

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### Pico-ITX Single Board Computer for Computer Vision applications and rapid prototypes

**UDOO X86 II**

- **Processor**: Intel® Core™ i7-8559U, Quad Core @ 1.8 GHz (Turbo Boost 4.5 GHz), 16MB Cache, 36W TDP
- **Memory**: UDIMM, 2666 MHz DDR4, 8GB, 1.2V
- **Graphics**: Intel® UHD Graphics 620, 2x miniDP++ connector, up to 3840x2160 @ 60Hz
- **Networking**: 2x Dual Gigabit Ethernet connectors
- **Mass Storage**: SSD 2.5” M.2, SATA Gen3 7p M connector
- **Video**: up to 3840x2160p60, 2560x1600p60, 240fps, 8-bit YUV
- **Video**: HDMI connector 1.4, eDP, M.2 slot, 1x miniDP++ connector
- **Power**: 12VDC, 18W Power Supply (DC/DC converter)
- **Expansion**: 1x M.2 Socket 2 Key E 2230 for optional WiFi/BT combo

### Development Kits for Rapid POC

**UDOO X86 in Pico-ITX form factor**

- **Processor**: Intel® Core™ i5-7200U, Quad Core @ 2.5 GHz, 3MB Cache, 25W TDP
- **Memory**: 8GB 2666 MHz DDR4, 1.2V
- **Graphics**: Intel® HD Graphics 520, 1x miniDP++ connector, up to 3840x2160 @ 60Hz
- **Networking**: 1x Dual Gigabit Ethernet connector
- **Mass Storage**: SSD 2.5” M.2, SATA Gen3 7p M connector
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---

### From sensors to Cloud in a single step

**SCORPUS**

- **Processor**: ESP32-D0WDQ6: Dual Core® RISC-V 32-bit Microprocessor
- **Memory**: Internal 524KB SRAM + 16KB SRAM in RTC
- **Graphics**: N.A.
- **Mass Storage**: Internal 520KB SRAM + 16KB SRAM in RTC
- **Networking**: 3x USB 3.0 Type-A socket
- **Mass Storage**: 8MB PSRAM
- **Expansion**: 8-pin PCB terminal block #2 (alternative to microSD Slot), able to manage:
  - 8x GPIOs connector
  - 6x SPI interface
  - SPI interface
  - 6x CAN bus
- **Audio**: HD Audio codec

### AI-ENABLED

- **Dimensions**: 4x8 cm
- **Temperature Range**: 0°C ÷ +70°C (Commercial temperature range)
- **Supply**: +9VDC .. +24VDC
- **Other**: Optional 4-wire TTL port on 5-pin dedicated PCB Terminal Block
- **Networking**: Optional microSD slot (alternative to Expansion PCB-terminal block #2)

### Vision applications and rapid prototypes

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**AI-ENABLED**

**Dimensions**

<table>
<thead>
<tr>
<th>System</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDOO BOLT GEAR</td>
<td>0°C to +60°C</td>
</tr>
<tr>
<td>UDOO KEY</td>
<td>0°C to +60°C</td>
</tr>
</tbody>
</table>

**Power Supply**

- **UDOO BOLT**: 24V power supply (2x USB-C on board)
- **UDOO KEY**: 24V power supply (2x USB-C on board)

**Dimensions**

- **UDOO BOLT**: 150 x 102 x 40 mm
- **UDOO KEY**: 130 x 40 x 10.9 mm

**Development Kits for Rapid POC**

- **UDOO BOLT GEAR**: Fully programmable board made for AI applications and rapid prototypes
- **UDOO KEY**: Clea AI

**Development Kits for Rapid POC**

- **UDOO BOLT GEAR**: Fully programmable board made for AI applications and rapid prototypes
- **UDOO KEY**: Clea AI