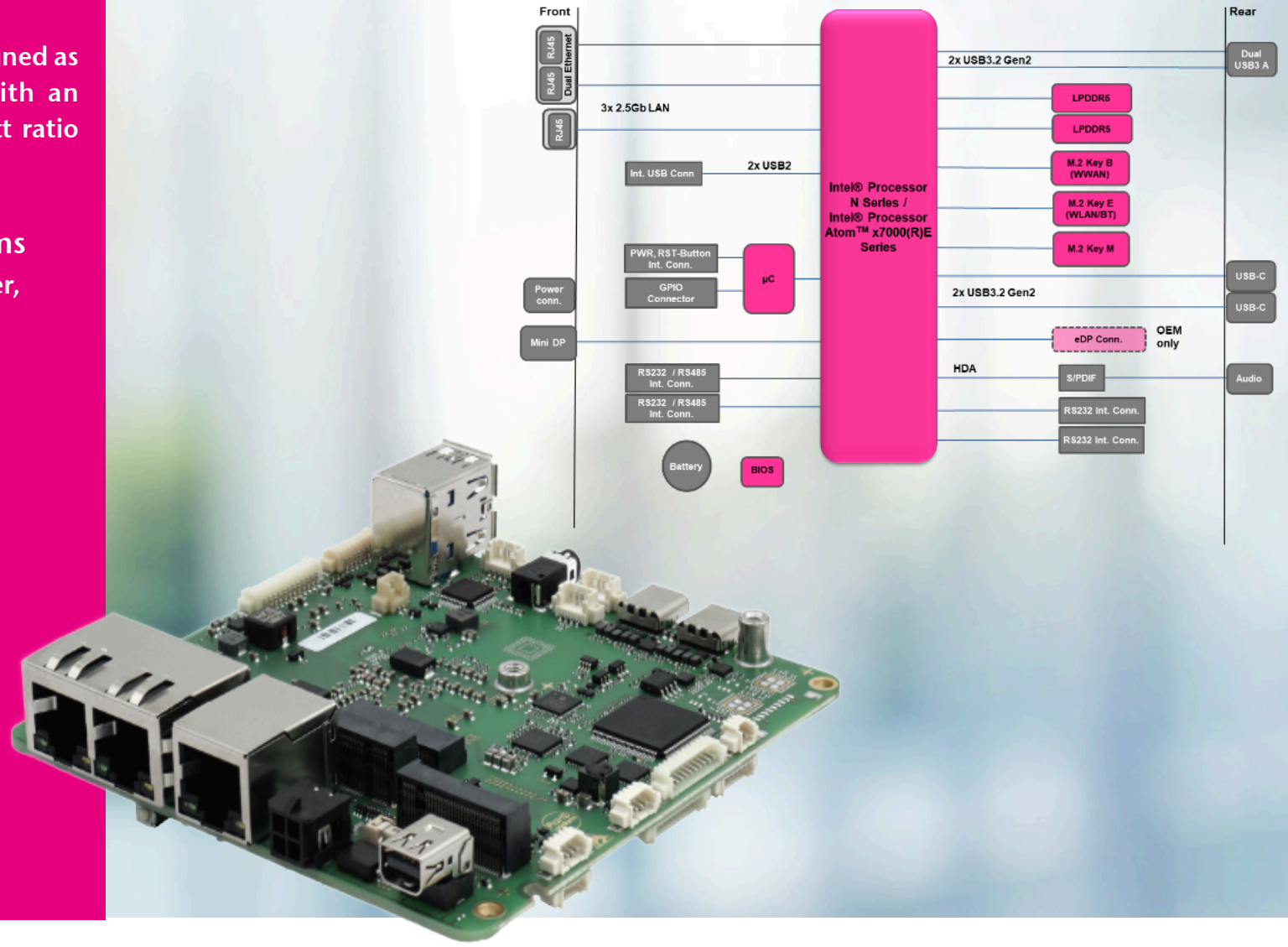
PROFIVE® NUCN

APPLICATIONS

The **PROFIVE® NUCN** was designed as a low power eNUC board with an excellent performance-per-watt ratio and is optimal adapted for:

_ Rugged Industrial Systems
  no rotating parts, low power,
  extended temperature,
  passive cooled
_ Medical Solutions
_ CV Computer Vision
_ Robotics
_ Micro-Server
_ High-Performance
  Workstations
_ IoT
  edge / fog gateway



HIGH QUALITY
MADE IN GERMANY

15 years availability according to CPU manufacturers specification

intel IoT Solutions Alliance

E.E.P.D. ...just embedded!

PRELIMINARY eNUC 102x102

Specification	
CPU / GPU	Intel® Atom® Processors x7000(R)E Series, max. 12 W supported | Intel® Processor N Series, max. 15 W supported | Intel® UHD Graphics 12th Gen
BIOS	UEFI
Max. memory	up to 16 GB LPDDR5-4800 memory down, industrial temperature CPUs support In-Band ECC
Ethernet ports	Up to 3x Intel® I226-XX with 2,5 Gbit/s with IEEE1588, TSN-support, Wake-On-Lan supported by one port I226-V: 0°C to +60°C ambient (commercial temperature board variants) | I226-IT: -40°C to +85°C ambient (industrial temperature board variants)
eMMC	Up to 128 GB on board, JEDEC / MMCA Version 5.1 interface with 1-I/O, 4-I/O and 8-I/O mode
M.2 socket	1 x Key M, 2280, PCIe Gen3 x2 NVMe or SATA | 1 x Key B, 3042, USB 2.0 and USB 3.2 Gen1 or Gen2 (depends on CPU), e.g. WWAN | 1 x Key E, 2230, PCIe Gen3 x1 / USB 2.0, e.g. WLAN/Bluetooth
I/O´s	Max. 4x GPIO (3.3 V) and max. 3x GPIO with PWM (3,3 V / 50 kHz)
Display output	1x Mini Display Port, up to 4096 x 2160 @ 60 Hz | 2x USB-C Alt Mode, up to 4096 x 2160 @ 60 Hz | 1x eDP, up to 4096 x 2160 @ 60 Hz (OEM/ ODM only) | only three Displays at the same time are supported
USB-A port	Rear: 2x USB 3.2 Gen1 or Gen2 (depends on CPU), (up to 10 Gb/s, Overcurrent Protection = 1500 mA each)
USB-C port	Front: 2x USB-C 3.2 Gen1 or Gen2 (depends on CPU) (up to 10 Gb/s, Overcurrent Protection = 3000 mA) or USB C Alt Mode
USB internal	2 x USB 2.0 (480 Mb/s, Overcurrent Protection = 900 mA each) on Molex (PicoBlade)
Serial port	2 x RS-232 (HDX/FDX) on Molex (PicoBlade) | 2 x RS-232/485 (HDX/FDX) (OEM only) on Molex (PicoBlade)
Audio	High Definition Audio Codec with MIC in / Headphone out at a 3.5 mm Audio Jack / SPDIF in / SPDIF out at an internal Molex connector (PicoBlade), supports commercial temperature only
fTPM / TPM	Intel® PTT (Firmware TPM) | TPM 2.0 support (Infineon SLB 9670) (OEM only)
Status / control LEDs	Power and status LEDs
Hardware monitoring & management	Controllable FAN (PWM and Tacho); Temperature Sensor, Power Supply Voltage Monitoring, Watchdog
Power connector	Nexus Series 2300, 3.00 mm Micro MF housing with lock
Power supply	Min. 8 V / Max. 32 V (DC); automotive grade (eDP variants require minimum 14 V) | KL15 (ignition); Min. 60 W / Recommended 90 W
Operating temperature	0 °C to +60 °C ambient commercial grade | -40°C to +85°C ambient industrial grade Adequate cooling provided, depending on variant and cooling system, CPU throttling may occur at higher ambient temperatures
Storage temperature	-40 °C to +85 °C; non-condensing
Max. relative humidity	95% @ 40 °C, non-condensing while stored | 89% while working
Cooling	Fanless cooling / passive cooling options available | Optional CPU fan, 5 V | Optional Auxiliary fan, 5 V
Size approx.	102 mm x 102 mm
Weight approx.	110 g + options
OS support	Microsoft® Windows® 11 depending on CPU | Microsoft® Windows® 10 & 10 IoT Enterprise | Linux Ubuntu 22.04 LTS

Supported CPU types
Commercial temperature
Intel® Processor N50 2C | 2T | 1.0 GHz - 3.4 GHz | 6 W Operating temperature: 0°C to + 60°C
Intel® Processor N97 4C | 4T | 2.0 GHz - 3.6 GHz | 12 W Operating temperature: 0°C to + 60°C
Intel® Processor N100 4C | 4T | 1.0 GHz - 3.4 GHz | 6 W Operating temperature: 0°C to + 60°C
Intel® Processor N200 4C | 4T | 1.0 GHz - 3.7 GHz | 6 W Operating temperature: 0°C to + 60°C
Intel® Core™ i3-N305 8C | 8T | 1.0 GHz - 3.4 GHz | 9 - 15 W Operating temperature: 0°C to + 60°C
Intel Atom® x7211E 2C | 2T | 1.0 GHz - 3.2 GHz | 6 W Operating temperature: 0°C to + 60°C
Intel Atom® x7213E 2C | 2T | 1.7 GHz - 3.2 GHz | 10 W Operating temperature: 0°C to + 60°C
Intel Atom® x7425E 4C | 4T | 1.5 GHz - 3.4 GHz | 12 W Operating temperature: 0°C to + 60°C
Industrial temperature
Intel Atom® x7211RE 2C | 2T | 1.0 GHz - 3.2 GHz | 6 W Operating temperature: -40°C to + 85°C
Intel Atom® x7213RE 2C | 2T | 2.0 GHz - 3.4 GHz | 9 W Operating temperature: -40°C to + 85°C
Intel Atom® x7433RE 4C | 4T | 1.5 GHz - 3.4 GHz | 9 W Operating temperature: -40°C to + 85°C
Intel Atom® x7835RE 8C | 8T | 1.3 GHz - 3.6 GHz | 12 W Operating temperature: -40°C to + 85°C

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