Datasheet ON5800

- The ON5800 is a low-maintenance server/router (mobile data centre-in-a-box) for all on-board applications in the transport sector, for example trams and trains.
- Thanks to virtualisation (VM, container), several applications such as passenger information, infotainment, passenger counting, passenger WLAN, storage of monitoring data can be operated simultaneously on the same hardware.
- High-performance Intel 8 Core x86-64 CPU
- Extensive communication interfaces: 2 x 10 Gigabit Ethernet, 2 x Gigabit Ethernet, up to 6 x 5G mobile radio, 802.11ax Wi-Fi 6e, GNSS, 16 digital I/O, USB-C etc.
- Quality of service and firewall functionalities ensure that different security and capacity requirements can be met at all times.
- Automatic «zero touch» deployment ex works, i.e. devices can be installed directly from production and no manual configuration work is required (cloud-managed)
- Secure transmission of user data via VPN (IPsec with certificates)

Applications

- Mobile data centre for all vehicle-side applications
- 100 % cloud-managed
- Communication centre for multi-gigabit-fast vehicle-to-land communication
- Storage and management of all types of data, e.g. monitoring data

Features

- Intel® Xeon, 8 cores, 16 threads, 2,1 GHz
- 64 GB DDR5 DRAM, 2 x 960 GB SSD
- Wi-Fi 6e, 3 x 5G, GNSS
- 2 x 1 Gbps mit AMT / 2 x 10 Gbps Ethernet
- USB 3.0, USB-C, 16 x digital I/O
- Fan unit (consisting of 2 x fans)
- Metallic air filter (reusable)

Performance

- > 1000 Mbps local routing
- > 1000 Mbps VPN throughput via 5G

Technical specifications ON5800

Dimensions / Weight

Dimensions (W x H x D): 259 x 177 x 269 mm
Weight: < 5000 g, depending on options
Operating temperature: -40 to +70 °C (85 °C/10 min)

CPU

Intel® Xeon W-11865MRE, 8 cores, 16 threads, 2.1 GHz, 35 W, -40 °C to +100 °C

Memory

64GB ECC DDR4 memory with ECC

Security

Trusted Platform Module 2.0

Mass Storage

SDD Carrier with 2 x 2,5" SATA 960 GB TLC storage devices

Wireless Functionality

- 3 x SierraWirelss 5G/LTE/HSPA+/GNSS Modem
- 1 x WiFi 6e
- GNSS receiver

Interfaces

This product includes interface option:
Different wireless functions depending on assembled wireless interface cards

Modules

1x 02G028M04:

- Intel Xeon W-11865MRE, 8 cores, 16 threads, 2.1 GHz, 35 W, -40 °C to +100 °C
- 64GB ECC DDR4 memory with ECC
- TPM2.0
- 2x 10Gb Ethernet + 2x 1 Gb Ethernet
- 1x USB-C (USB3.2-1, DisplayPort 1.4)

1x 02G239-07:

- 1x SierraWirelss EM9191 5G/LTE/HSPA+/GNSS, M.2 Modem
- 1x WiFi: Sparklan WPEQ-268AXI

1x 02G239-08:

- 2x SierraWirelss EM9191 5G/LTE/HSPA+/GNSS, M.2 Modem
- 1x Ublox ZED-F9R receiver

1x 02G403-00:

- 16 bidirectional digital I/Os
- Organized in 4 optically isolated groups

2x 02G501-11:

SDD Carrier with 2,5" SATA 960 GB TLC storage device

I/O Interface Front

yellow LED «Power on» – «sec voltage on», Power Switch, Reset button, LAN: M12 X-coded pinout with Push-Pull, QMA Antenna Conectors, 16 digital signals (input or outpu) in 4 isolated groups, D-Sub 9 pin male RS-232/RS422, Hot-plug LED, Status LED for CPU

I/O Interface Rear

5x SATA Interface Gen 3, 2x PCIe Gen 3 x8,
4x PCIe Gen 3 x4, 2x PCIe Gen 2 x1, 2x USB 3.0,
2x Gbit Ethernet 1000BASE-T

Electrical Specifications

- Power input 24~110 VDC M12 k-coded connector
- Ignition Input M12 a-Type male connector
- Setting 8-level power on/off delay time by software
- 10~255 seconds WDT support, setup by software

Reliability

MTBF > 80'000h ccording to IEC TR 62380 at 25 °C

Product Compliance: Rail-Rolling Stock

- Operating temperature: -40 °C to +70 °C, (EN 50155:2021, class OT4, ST0)
- Equipment location: EN 50155:2021, location 2, cabin and interiors
- Altitude +2000 m max. (EN 50125-1:2014, class AX)
- Humidity +55 °C and +25 °C, 100 % RH max. (EN 50155:2021)
- Shock 30 ms @ 50 m/s^2 (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B)
- Vibration 10 min @ 2.02 m/s^2 (functional) and 5 h @ 11.44 m/s^2 (long-life) (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B)
- Power supply General compliance with power supply requirements of EN 50155:2021
- Interruption of voltage supply: 10 ms (EN 50155:2021, class S2)
- Pollution degree EN 50124-1:2017, class PD2
- Overvoltage category EN 50124-1:2017, class OV2
- Electrical safety EN 50155:2021, EN 50153:2014 + A1:2017, EN 50124-1:2017, EN62368-1:2016
- Fire protection EN 45545-2:2020 + A1:2015, HL3
- EMC emission EN 50121-3-2:2016 Regelung Nr. EMV 06 :2019-05-09 (Ausgabe 2.0), Anhang E: Messung an Geräten
- EMC immunity EN 50121-3-2:2016
- Protective coatings EN 50155:2021, class PCX
- Sockets and edge connectors EN 50155:2021, class K1
- EU Directive 2014/53/EU (RED Directive)

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