

G506

Data Sheet

Rugged Storage Expansion, 4x M.2 NVMe SSD Slot

CompactPCI Serial Board with PCIe 3.0 for High-Speed Data Transfer

- **Supports 4x M.2 NVMe SSDs (PCIe 3.0 x4)**
- **2230/2242/2260/2280 card sizes**
- **Large aluminum heatsink**
- **Drive control interface and thermal monitoring**
- **11 status LEDs**
- **Onboard Power Loss Protection**
- **-40 °C to +85 °C operating temperature**
- **Compliant with EN 50155 (railways)**
- **Long-term availability**

Product Description

Supports 4x M.2 NVMe SSDs (Up to PCIe 3.0 x4 Speeds)

The G506 is a CompactPCI Serial storage expansion board supporting up to four M.2 NVMe SSDs with a form factor up to 2280 and is connected to the backplane via PCIe 3.0 x8.

Rugged Drive Carrier

A large finned aluminum heat sink provides optimum heat dissipation and maintains drive reliability and speeds. The G506 also supports PLN# (Power Loss Notification) to alert drives of an impending power loss.

Thermal Monitoring and Control

Thermal sensors allow for flexibility with specific user applications and thermal conditions, e.g., to facilitate use of consumer-grade SSDs.

Front Panel Status LEDs

The unit's front panel features LEDs for board power, configurable location and ejection status as well as activity for each of the installed drives.

Suitable for Railway Applications

The G506 complies with the EN 50155 standard for use in railway applications.

Technical Data

Interfaces

- SSD slot
 - 4× M.2 2230/2242/2260/2280 socket 3 Key M; NVMe (PCIe 3.0 x4)
- PCI Express: 1× PCIe 3.0 x8, backplane

Supervision and Management

- Temperature measurement
- Drive control

Product Standard

- CompactPCI Serial: CompactPCI Serial PICMG CPCI-S.0 Specification

Electrical Specifications

- Supply voltage: +12 V (-10 % / +10 %)
- Power consumption: 60 W peak
- Maximum allowed power consumption per drive: 11 W

Mechanical Specifications

- Dimensions: 3U, 4 HP
- Weight: 311 g (with heat sink, no drives assembled)
- Cooling: forced convection, required airflow depends on assembled drives
- Protection rating: IP20

Product Compliance: Rail - Rolling Stock

- Compliance level: This product is prepared for use in EN 50155 systems. Some parameters are system-dependent and are specified on system level.
- Operating temperature: -40 °C to +85 °C (EN 50155:2021, Tmax/PCB = +85 °C; designed for use in OT4+ST1 systems)
- Equipment location
 - EN 50155:2021, location 1, closed electrical operating area
 - EN 50155:2021, location 2, cabin and interiors
- Rapid temperature variations: EN 50155:2021, class H1, no requirements
- Storage temperature: -40 °C (EN 50155:2021) to +85 °C (EN 60068-2-2, Bb)
- Altitude: +3000 m max. (EN 50125-1:2014, class AX)
- Pollution degree: EN 50124-1:2017, class PD2
- Humidity: +55 °C and +25 °C, 100 % RH max. (EN 50155:2021)
- Shock: 30 ms @ 50 m/s² (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class A)
- Vibration: 10 min @ 2.02 m/s² (functional) and 5 h @ 11.44 m/s² (long-life) (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B, double acceleration)
- Electrical safety
 - EN 50155:2021
 - EN 50153:2014 + A1:2017 + A2:2020
 - EN 50124-1:2017
 - EN ISO 13732-1:2008
- Fire protection: EN 45545-2:2020, EL9, HL3
- EMC emission
 - EN 50121-3-2:2016 + A1:2019
 - Regelung Nr. EMV 06 :2019-05-09 (2.0), Anhang E: Messung an Geräten, Schutzklasse S1
 - Regelwerk 50.02.01 :2021-12-01, 12.3.2. EMV - Funk, prequalified according to electronic equipment tests defined by Deutsche Bahn EMV 06 standard, class S1, for risk minimization in finished vehicle test
- EMC immunity: EN 50121-3-2:2016 + A1:2019
- Protective coatings: EN 50155:2021, class PC2 (Any PCB protected on both sides)
- Useful life: 20 years (EN 50155:2021, class L4)

Product Compliance: Rail - Wayside Non-Safety Related

- Operating temperature: -40 °C to +70 °C (EN 50125-3:2003, class T2, cubicle, with class T2 maximum extended by 5 °C)
- Storage temperature: -40 °C (EN 60068-2-1:2007, Ab) to +85 °C (EN 60068-2-2:2007, Bb)
- Altitude: +3000 m max. (EN 50125-3:2003, class AX)
- Pollution degree: EN 50124-1:2017, class PD2
- Humidity: 95 % RH max. (EN 50125-2:2002, building N.C.C., class T1/T2/TX)
- Humidity - Condensation: Non-condensing
- Shock: 11 ms @ 20 m/s² (EN 50125-3:2003, in a switch cabinet 1 m to 3 m from the track)
- Vibration: 2.3 m/s² (EN 50125-3:2003, in a switch cabinet 1 m to 3 m from the track)
- Electrical safety
 - EN 50124-1:2017
 - EN 62368-1:2014 + AC:2015
- EMC emission: EN 50121-4:2016 + A1:2019
- EMC immunity: EN 50121-4:2016 + A1:2019

Product Compliance: Information Technology Equipment

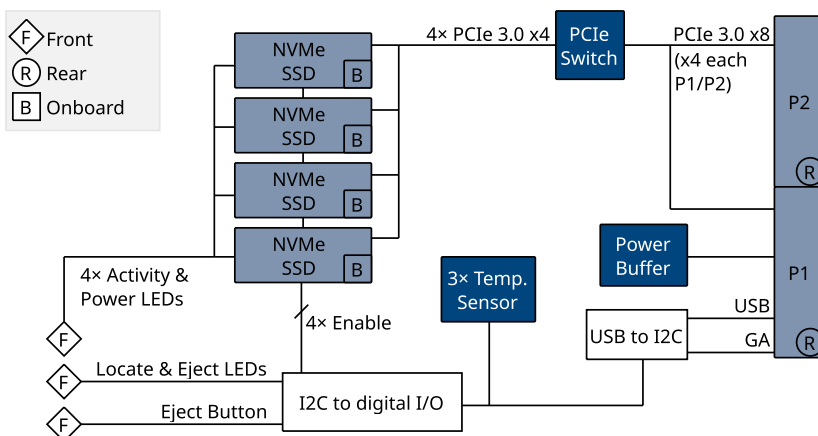
- Operating temperature: -40 °C (EN 60068-2-1:2007, Ae) to +85 °C (EN 60068-2-2:2007, Be)
- Storage temperature: -40 °C (EN 60068-2-1:2007, Ab) to +85 °C (EN 60068-2-2:2007, Bb)
- Altitude: +3000 m max. (EN 62368-1:2014 + AC:2015)
- Electrical safety: EN 62368-1:2014 + AC:2015
- Flammability (PCBs): UL 94 V-0
- EMC emission:
 - EN 55032:2015 + A11 + A1:2020 (multimedia equipment), class A (industrial environments)
 - EN 61000-6-4:2019 (generic standard, industrial environments)
- EMC immunity:
 - EN 55035:2017 + A11:2020 (multimedia equipment)
 - EN 61000-6-2:2019 (generic standard, industrial environments)

Reliability

- MTBF: 1 332 211 h (board only, depends on number and type of assembled drives) predicted @ 40 °C according to IEC/TR 62380 (RDF 2000)

Software Support

- Linux
 - Tested with: Ubuntu 24.04 LTS

Functional Diagram

Standard Models

02G506-00

3U CPCI Serial, 4HP, 4x M.2 storage expansion board, -40 °C to +85 °C, conformal coating

► **Contact [duagon](#)** for availability and lead times for product models not listed above.