

CENTRAL PROCESSING UNIT 6000 SERIES

OUR LATEST HIGH-PERFORMANCE CPU6000 SERIES PROVIDES STATE-OF-THE-ART CYBERSECURITY FEATURES AND SERVES AS THE PROCESSING CORE OF OUR NEXT-GENERATION TCMS PLATFORM.

The CPU6000 Series includes the CPU6000, CPU6010 and CPU6030 modules. With multiple performance variants, you can select exactly the processing capability each system requires, avoiding unnecessary cost or over-specification.

KEY FEATURES

CYBERSECURITY COMPLIANCE

The CPU6000 Series is designed in accordance with the Cyber Resilience Act (CRA), Regulation (EU) 2024/2847, ensuring compliance with the latest European cybersecurity standards. It also meets with railway-specific requirements defined in the upcoming IEC 63452, supporting up to Security Level 2. The architecture provides the capability to run intrusion detection agent software, enabling proactive threat monitoring and enhanced system protection.

HIGH PERFORMANCE AND SCALABILITY

The CPU6000 features a high-performance multi-core processor, while the CPU6010 is equipped with a high-performance single-core processor, offering flexibility for different system requirements. Both models are capable of running multiple demanding applications, including future-proof TCN and VCU solutions. They support up to 5,000 TRDP nodes with less than 50% processor load, delivering exceptional efficiency and scalability for complex train networks.

SYSTEM INTEGRATION

An integrated VCU concept is enabled by moving logic from the RIOM to the VCU. The CPU6000 Series is designed for mid- to large-size Ethernet TCN-based EMU trains and supports various Ethernet architectures, including redundant TCN networks.

HIGH-SPEED NETWORKING WITH DUAL HOMING

With high-speed networking at its core, the CPU6000 Series ensures reliable data exchange across advanced train communication systems with complex architectures.

OPTIMISED FOR REMOTE I/O AND GATEWAY APPLICATIONS

The CPU6030 is designed specifically for remote I/O and gateway functionalities. Optimised for these roles, it provides the necessary interfaces and processing capabilities to ensure efficient data exchange and reliable connectivity within complex train control architectures.

Smarter trains. Better future.

AUTOMATION AND SAFETY

Built for Grade of Automation (GoA) up to Level 4 in compliance with EN 62290. Functional safety pre-certified to SIL 2 according to EN 50129 and EN 50716, guaranteeing reliability for critical rail applications.

SAFE AND RELIABLE COMMUNICATION

For safety-critical applications, the system supports SDTv2 (Safe Data Transmission), providing secure and dependable data exchange. It also implements TRDP, the standard network protocol for IP-based communication in modern train systems, enabling interoperability and high-performance connectivity.

BUILD TRAIN MANAGEMENT APPLICATIONS

The CODESYS® PLC kernel is embedded in the CPU and acts as the CPU's operating software. Train management applications can be developed with the CODESYS® PLC software in order to create the desired control and diagnostic functions of the train. The open platform runs on the Linux Operating Software and supports further software development in C language and Python, either as a CODESYS® extension or on top of the module's Linux kernel.



PENDING COMPLIANCE

EN 50155
EN 45455-2
EN 50716
EN 50126
EN 50129
EN 62290
IEC 61131
IEC 61375
IEC 62443-4-2
IEC 62425
IEC 63452 (upcoming)
CLC/TS 50701

TECHNICAL SPECIFICATIONS

Dimensions (W x H x D):

8 TE x 3 U x 160 mm (CPU6000)
4 TE x 3 U x 160 mm (CPU6010/CPU6030)

Weight:

295 g (CPU6000)
193 g (CPU6010/CPU6030)

Temperature Range (operational):

-40 °C...+70 °C

Power Consumption (typical):

5 W (CPU6000)
2 W (CPU 6010/6030)

MTBF (40 °C ambient temperature):

> 1 000 000 h

Central Processing Unit:

2 GHz multi-core ARM processor with 64-bit instruction set (CPU6000)
1 GHz single-core ARM processor with 64-bit instruction set (CPU6010)
400 MHz single-core ARM processor with 64-bit instruction set (CPU6030)

Ethernet Interfaces:

3 x 1 Gbps, connector type M12, X-coded (CPU6000)
2 x 100 Mbps, connector type M12, D-coded (CPU6010/CPU6030)

Serial Console:

USB-C

File System & Event Logging Flash Memory:

16 GB eMMC Flash

Processor RAM:

2 GB LPDDR4 SDRAM, bus speed up to 2666 MB/s (CPU6000)
1 GB LPDDR4 SDRAM, bus speed up to 1600 MB/s (CPU6010/CPU6030)

Front Panel Memory Card Slot:

SD Card, SDR104, for firmware updates and device recovery (CPU6000)

Real-time Clock:

Reserve time of at least 30 days
Accuracy better than 10 seconds in 50 days (at room temperature)

The products, specifications, features and design are subject to change without notice.

EKE