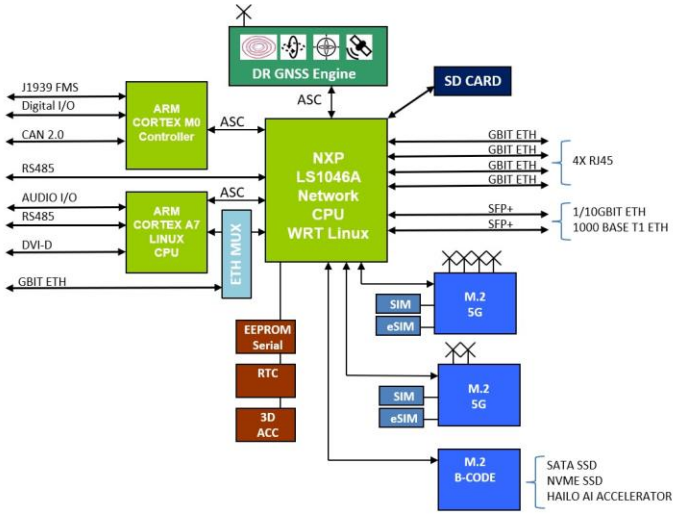
ER03 - High Performance 5G Router with DR Navigation

ER03 - General Features

- High performance NXP LS1046A networking processor
- Optimized WRT OS
- H3 CORTEX A7 Quad core Linux application processor
- High accuracy ADR/ UDR supported GNSS positioning
- Transparent handover between DR and GNSS
- CORTEX-M0 management microcontroller
- Dual 5G modems with eSIM/nanoSIM support (M.2)
- 4 +1 10/100/1000Mbit Ethernet, 2x SFP+ interfaces
- **2x SFP+ supporting 10Gbit Copper/Fiber Ethernet**
- 1x CAN, 1x J1939 FMS, 2x RS-485 ports
- HD Audio I/O (Line levels), optional DVI-D
- 2x 24VDc DIN, Emergency button and Ignition
- 1x M.2 expansion (PCIE 2.0/SATA and USB 3.0)
- Electronic serial number EEPROM
- 14.4-36VDC input with railway/automotive grade PSU



Applications:

- High performance bus/train routing gateway
- Passenger WiFi router
- Network and data security node
- Vehicle PIS upgrade and modernization programs
- Multi-path tactical EDGE router

ER03 – High Performance 5G MIMO Router

The Deal Comp ER03 stand-alone high performance EDGE Router bases on the NXP LS1046A dedicated networking processor. This CPU features optimized resources for network traffic data management over multiple independent Ethernet controllers. Five Gbit PHY and dual SFP+ interfaces, suitable for **10Gbit copper or fiber,** are available for external Ethernet connectivity. Furthermore, two M.2 modem sockets are available for 5G modems with high- speed USB 3.0 and PCIe 2.0 interfaces and esim/uSIM support. The ER03 includes a high accuracy L1/L5 DR enhanced GNSS subsystem targeting demanding vehicle applications. The navigation subsystem leverages the latest technologies in sensor-assisted GNSS location. Handover between DR- and satellite-based navigation is seamless and transparent.

The ER03 is based on a WRT Router Linux optimized for the NXP LS2046A hardware accelerated networking processor, which is supported by a dedicated system management microcontroller. A dedicated CORTEX A7 CPU can execute user data encryption or security software.

Local Flash storage is used for the WRT OS and supporting application software. An additional uSD-card or SATA/NVME SSD can be used for local data logging. Two 0-24VDC range digital inputs can be used for general purpose I/O or as dedicated inputs for emergency pushbutton or ignition key sensing.

The ER03 is a fully fledged Open-Source EDGE gateway router with the ability to extract vehicle or device data from the vehicle's CAN or J1939-bus. The J1939 CAN data speed and direction (gear) sensing data can be used for ADR navigation.

Onboard PIS systems are being incrementally upgraded to IP-based solutions connected to back-end systems using modern 5G modems or 802.11ax high speed connectivity.

The ER03 is an open platform, which is programmable and upgradeable to support different project requirements and back-end data API's. Please contact Deal Comp for details on such support and services.

The design of the power supply has extensive input filtering exceeding the requirements EN50155 and ECE Reg 10. The input contains an active protection circuit and a multi-stage filter to ensure lowest emissions and best immunity. The input is reverse protected up to 350V and will withstand indefinite overvoltage up to 350VDC. The operating temperature range is -20 to +70C.

	Specification
GNSS	Constellations: GPS, GLONASS, BeiDou, Galileo and QZSS 48 tracking channels -162 dBm tracking sensitivity L1/L5 band support FAKRA connector for antenna
DR	6-axis MEMS sensor, Wheeltick and Direction/ J1939 sensing
MODEM (2x)	5G (M.2 MiniPCIe or M.2 interface) eSIM and uSIM, software selectable uSIM front accessible B1, B3, B5, B7, B8, B20 B38, B40, B41 band support 2x FAKRA and 4x FAKRA connectors for MIMO antennas (5G)
CPU 1	WRT NXP Layerscape LS1046A networking processor SD-card memory expansion Secure unique serial number EEPROM for device identification
CPU 2	ARM CORTEX A7 Quad core Linux CPU
CPU 3	ARM CORTEX M0 System management controller
Interfaces	4 +1 10/100/1000 Mbit Ethernet (RJ-45), 2x SFP+ supporting 10Gbit Copper/Fiber Ethernet Audio I/O, DVI-D (CORTEX A7) 2x RS-485, 2x CAN port, 2x 0-24VDC Emergency, Ignition IN 2x Open Collector MOSFET outputs (1A)
Expansion	M.2 B-code (PCIe/SATA, USB 3.0) - 802.11ax WiFi - NVME SSD - SATA SSD - HAILO AI Accelerator
Power	14.4-36VDC input range
Indicators	2x MODEM Status, 1x power, 1x user configurable
Firmware	Location modem streaming, Location to IP Trackobit Fleet management software API Driver behavior monitoring – 3D accelerometer and SENSIOR Software API Routing functions based on WRT System configuration using LUCY web interface

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