

owa5X



Wireless Embedded Computer

owa5X Core:

- i.MX8 M Plus Quad A53 64 bit
- Core frequency 1.6GHz
- Neural Processing Unit (NPU) (Optional) up to 2.3 TOPS
- GPU (Optional)
OpenVG 1.1, G2D, OpenGL® ES 3.1 Vulkan®, OpenCL™ 1.2 FP
- 2GB LPDDR4 (Up to 4 GB)
- 1GB NAND Flash SLC
- 8GB EMMC Flash (Up to 32 GB)
- Linux kernel 5.10.72
- Debian Distribution File System or Yocto Kirkstone Based Distribution
- Access to Debian Standard Repositories
- Able to run C, C++, Java, Python applications
- Secure: HAB (High Assurance Boot) and TPM 2.0

Key features

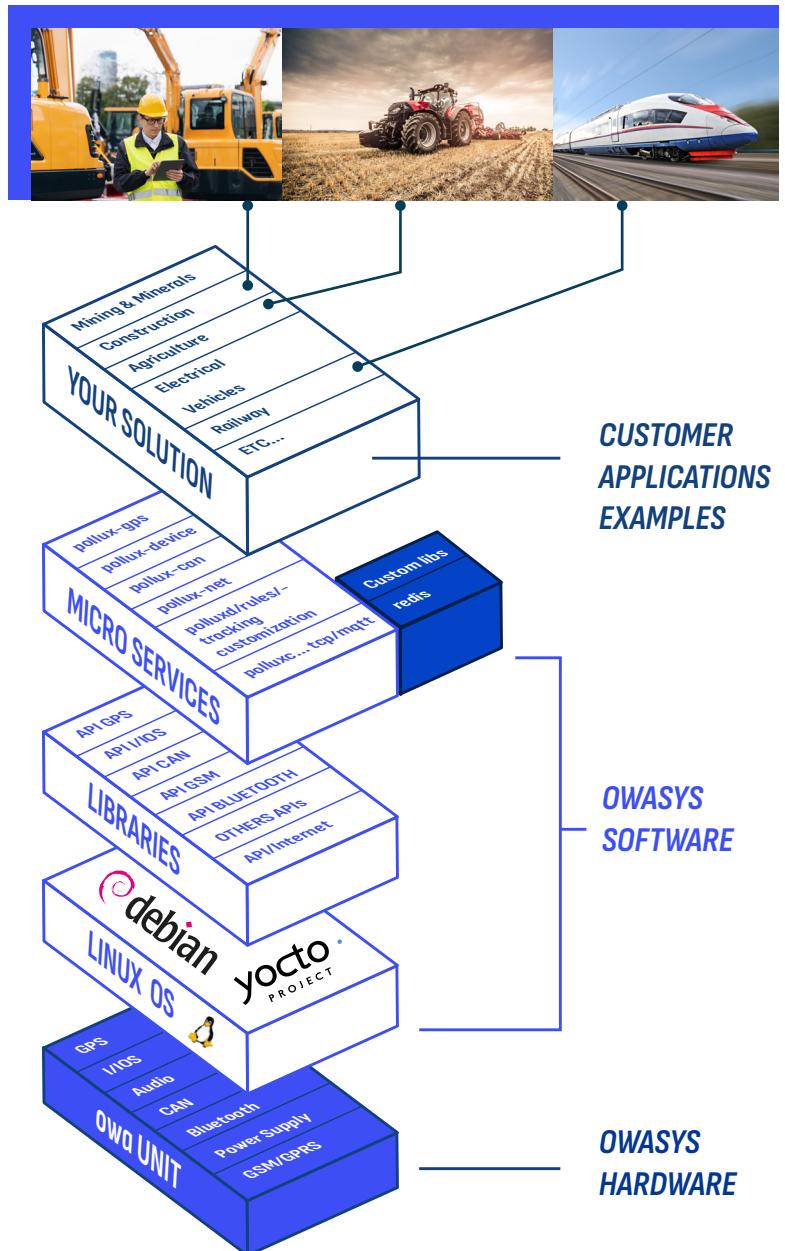
- HAB - High Assurance Boot
- TPM 2.0
- IP67/ IP6K9K Enclosure
- Global LTE Cat 4
- CAN (up to 4 interfaces)
- Programmable 6 Axis sensor: Accelerometer/Gyroscope
- Optional Dead reckoning
- 10/100BASE-T1 IEEE802.3bw (SPE) or 10/100BASE-TX
- MicroSD
- miniSIM and MFF2 SIM available

Wireless Interfaces:

- Concurrent reception of up to 3 GNSS, GPS, GLONASS, GALILEO, BeiDou
Dead Reckoning options
- Global LTE Cat 4 with 3G/2G fallback
- WiFi 802.11ac
Simultaneous access point (AP) & station (STA)
- Dual mode Bluetooth 5.2
Bluetooth BR/EDR and Low Energy

Mechanics

- IP67 / IP6K9K
- L=154 x W=188 x H=62 mm



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**CPU**

- i.MX8 M Plus Quad A53 64 bit at 1.6 GHz clock speed.
- Linux Kernel 5.10.72 – Debian | Yocto Kirkstone Distribution
- Neural Processing Unit (NPU) up to 2.3 TOPS (optional)
- GPU (optional)
 - OpenVG 1.1, G2D, OpenGL® ES 3.1 Vulkan®, OpenCL™ 1.2 FP
- NAND FLASH 1 GByte.
- EMMC FLASH 8 GByte (options up to 32 GBytes)
- LPDDR4 2GBytes (options up to 4 GBytes)
- MicroSD card holder for additional storage.

LTE Cat 4 / 3G / 2G

- LTE FDD B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28
- LTE TDD B38/B39/B40/B41
- UMTS B1/B2/B4/B5/B6/B8/B19
- GSM 850/900/1800/1900MHz
- LTE-FDD: Max 150 Mbps (DL), Max 50 Mbps (UL)
- LTE-TDD: Max 130 Mbps (DL), Max 30 Mbps (UL)

GNSS

Concurrent receiver: GPS/GLONASS/QZSS/BeiDou.
- 72-channel* continuous tracking receiver.

- GALILEO E1B/C ready.*
- SBAS: WAAS, EGNOS, MSAS, GAGAN.
- Update Rate: up to 10 Hz.
- Accuracy: 2.5 meters CEP.
- Signal Acquisition:
 - Cold Start: 26 s.
 - Hot Start: < 1.5 s.
- Active Antenna Power Supply: +3 V @ 34 mA..

* Features availability depending on version

Interfaces

- Up to 4 CAN-FD SIC bus
- Integrated sensors.
 - Programmable 6 axis sensor, accelerometer and gyroscope.
- TPM 2.0
- 12 configurable digital input/outputs:
 - 50V max inputs (logic low < 1.5 V, high > 3 V).
 - All inputs function as wake signals for low power modes.
 - All inputs can be used as counters (odometer). 32 bit, 3 kHz max.
 - 10 open collector outputs (200 mA each).
 - 2 high-side switches to Vin for output (1 A each).
 - Short-circuit protection for all outputs.
- 4 analog inputs:
 - 12 bit resolution, 1% accuracy.
 - 1 Share digital I/O pins and 3 dedicated pins.
 - 0-5,12 V (5 mV per bit) or 0-30,72 V (30 mV per bit) configurable by SW
- Maxim 1-wire
- microSD card holder
- 1 USB Host 3.0, current limit 900 mA.
- 2 external RS232 ports:
 - 1 x (TX/RX/CTS/RTS)
 - 1 x (TX/RX) or RS485 (factory option)
- 802.3bw 10/100BASE-T1 (SPE) or 802.3u 10/100BASE-TX
- Vout 5 V power output (500 mA max).
- FAKRA antenna connectors
- 4 LEDs for status indication

* Availability of features depends on models

Power Supply:

- 24 V (9 V to 36 V) DC input.
- Typical consumption at 24 V

OFF	0.98 mA
Standby	12.36 mA
RUN	51.95 mA
RUN + GSM + GPS	92.60 mA

Batteries

- Back-up when there is no power supply available.
- Standard backup battery for RTC. Duration 10 years.
 - Optional rechargeable Li-Ion 3.6V. Inserted via battery cover.

Temperature

Safety Purposes Operating Temperature Range without Li-ion Battery	-40 °C to +70 °C
Safety Purposes Operating Temperature Range with Li-ion Battery	-40 °C to +55 °C (from external power supply) -20 °C to +53 °C (battery can power the unit) 0 °C to +45 °C (battery will be charged if external power available)

Rugged enclosure

- Environmental protection to IP6K9K standard. (full protection against dust and water).
- Dimension: L=154 x W=188 x H=62 mm)
- Weight: 768 gr
- Material: Glass reinforced polyester.
- System connectors: TE 776163-1 (35 pins)
- miniSIM (2FF)
- MicroSD

Development Kit

Includes: Developer's board owa5X, power supply cables, cables for interfaces, antennas, web access to: cross compiler, APIs, libraries, manuals and application notes.

Options

See DESI-BOK 000 5001 for product variants and options.

