owa5X Core:
- i.MX8 M Plus Quad A53 64 bit
- Core frequency 1.6GHz
- Neuro Processing Unit (NPU) (Optional)
- 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)
- Programable 6 Axis sensor: Accelerometer/Gyroscope
- Optional Dead reckoning
- 10/100BASE-T1 IEEE802.3bw (SPE) or 10/100 BASE-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
TECHNICAL SPECIFICATIONS

• CPU
  – i.MX8 M Plus Quad A53 64 bit at 1.6 GHz clock speed.
  – Linux Kernel 5.10.72
  – Debian File System | Yocto Kirkstone based Distribution
  – Neuro Processing Unit (NPU) (optional)
  – NAND FLASH 1 GB.
  – EMMC FLASH 8 GB (options up to 32 GB)
  – LPDDR4 2 GB (options up to 4 GB)
  – MicroSD card holder for additional storage.

• Interfaces
  – 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.

• LTE Cat 4 / 3G / 2G
  – LTE TDD B38/B39/B40/B41
  – 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
  – LTE Cat 4 / 3G / 2G
  – 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 10/100 BASE-T1 (SPE)
    or 802.3u 10/100 BASE-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: 51.96 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)
  *Industrial temperature range components -40 °C to +85 °C

• 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)
  – minSIM (2FF)
  – MicroSD

• Development Kit
  Includes: Developer’s board owa5X, power supply cables, cables for interfaces, antennas, web access to: cross compiler, API’s, libraries, manuals and application notes.

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