



NXP Mobile Robotics

**NavQ95 RevB vehicle computer,
based on NXP i.MX 95**

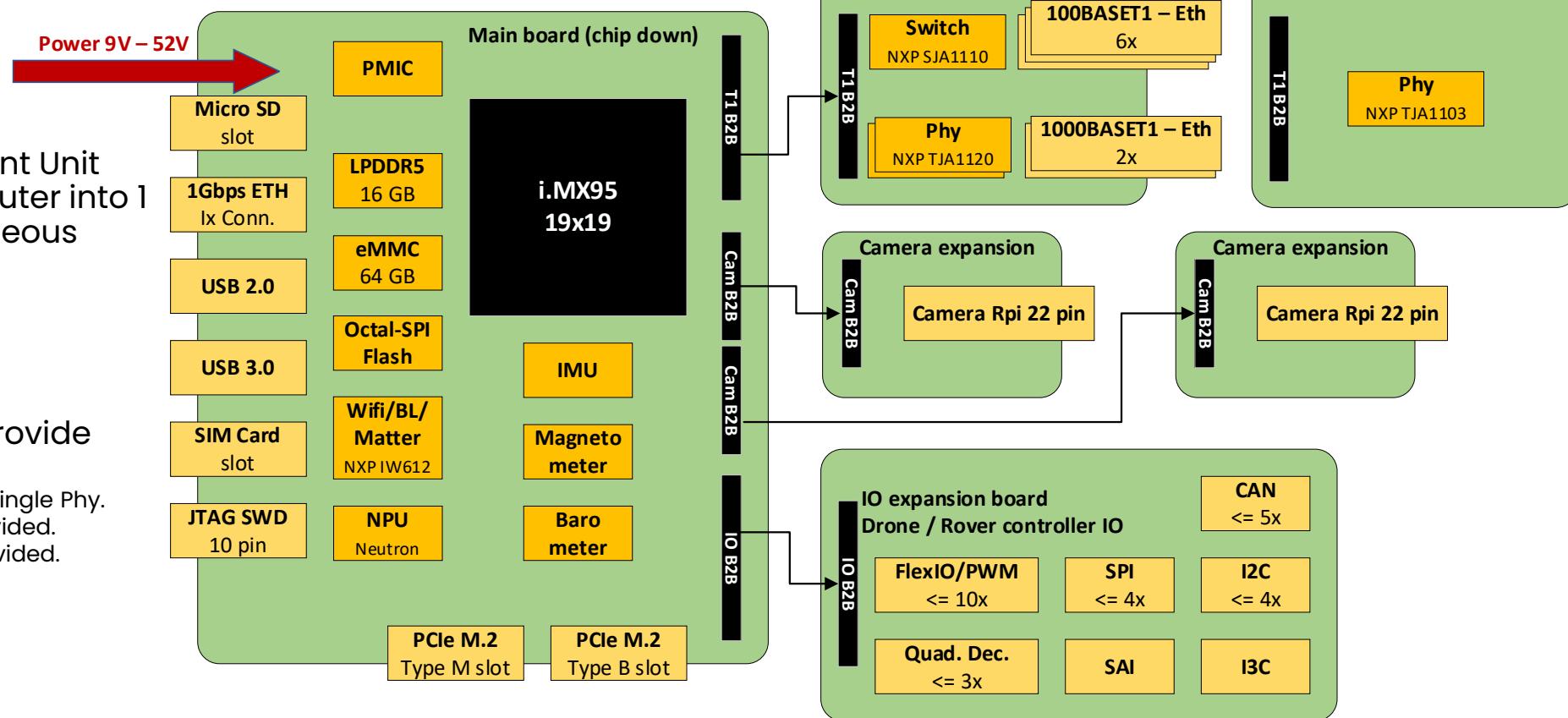
**Proof of concept NavQ95 RevB running
Zephyr / ROS2 / Cognipilot or
Nuttx / PX4 opensource software**

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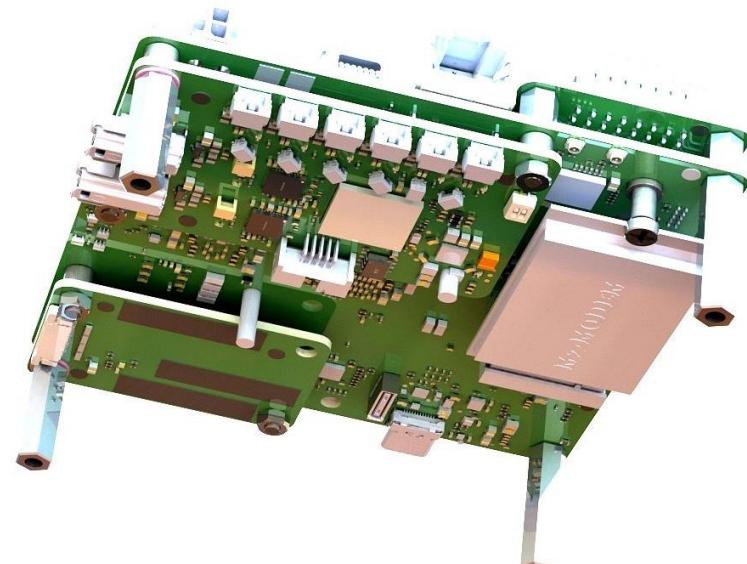
NavQ95 RevB *Proof of concept only*

- Combining Vehicle Management Unit and Vehicle Companion Computer into 1 Vehicle Computer, a heterogeneous MCU/MPU combination.
- Single main board:
 - Small form factor, ready to use.
 - Low cost.
- Multiple expansion boards to provide flexibility in:
 - Network capabilities: T1 Switch or T1 Single Phy.
 - Camera connections: Rpi 22 pin provided.
 - IO connections: Drone / Rover IO provided.
- Running opensource software:
 - Zephyr, Ubuntu, ROS2 & Cognipilot
 - Nuttx & PX4



NavQ95 RevB *Proof of concept only*

- The heterogeneous vehicle computer is based on:
 - 6x Arm Cortex-A55 cores, to execute compute intense functions.
 - 1x Arm Cortex-M7 core, to execute real-time control.
 - 1x Arm Cortex-M33 core, to execute NXP System Manager.
- Mobile robotics interfaces, using DroneCode connectors:
 - CAN/CAN-FD.
 - 1 Gbps ethernet (RJ45), with Precision Time Protocol (PTP).
 - 100BaseT1 and 1000BaseT1 Automotive ethernet (PTP).
 - PWM headers.
 - Camera connectors, CSI/DSI 22 pin Rpi.
 - GPS connector.
- High bandwidth M.2 PCIe interfaces, targeting:
 - Kinara ARA-2 NPU.
 - Cellular modem.
 - Storage (SSD).
- Onboard mobile robotics sensors:
 - IMU.
 - Magnetometer.
 - Barometer.
- AI capabilities:
 - On-chip NXP Neutron NPU.
 - Possibility to connect up to 3 NXP Kinara ARA-2 NPUs.
 - Cloud based AI through Wifi6 or 5G connectivity.
- Software:
 - Zephyr / Cognipilot or Nuttx / PX4 running on M7 core.
 - Ubuntu 24.04 with ROS2 Jazzy running on A55 cores.
 - High speed inter core communication using shared memory / RpMsg.
- Other:
 - Battery voltage between 9V and 52V, accommodating 12-S batteries.
 - Quality components that can be source internationally.





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