

PRODUCT DATASHEET

Nexus Carrier Card

Carrier board/card that takes Astria or Galaxia tiles and leverages a Raspberry Pi 5 Compute Module to automate testing or assist solution creation.

Hardware profile

Family	Nexus + OGMA
Category	Carrier board
Status	Current brochure product
Form factor	Carrier card/board for Astria or Galaxia tiles
Radiation positioning	Not specified in brochure
Primary target	Prototype solutions, automate tile testing, support FPGA USB development and external peripheral integration
Source pages	6

Key hardware

Raspberry Pi CM5 / Broadcom BCM2712 + tile carrier interfaces + FTDI4232H + clock generator + PMODs

Carrier board provisions

Attribute	Value	Source
Provided feature	Direct JTAG access to the tile JTAG pins	6
Provided feature	USB JTAG access via USB-C	6
Provided feature	USB-C access to an FTDI4232H mapped to the FPGA tile I/O ring	6
Provided feature	Skyworks clock generator connected to dedicated clock inputs on the FPGA tile I/O ring; configurable using an external programmer or via the CM5	6
Provided feature	Two PMODs connected to the FPGA tile I/O ring for external peripherals	6
Provided feature	USB-C access directly to the FPGA pins to enable development of FPGA USB solutions	6
Provided feature	USB-C access to the RPi CM5 for configuration and setup	6
Provided feature	GPIO connections between the FPGA tile I/O ring and the RPi CM5	6
Provided feature	Ethernet, WiFi, Bluetooth, 2 MIPI CSI/DSI interfaces, dual HDMI, and dual USB-A provided by the RPi CM5	6

Board architecture diagram

Attribute	Value	Source
Diagram node	FTDI From architecture diagram labels on page 6	6
Diagram node	FPGA Tile From architecture diagram labels on page 6	6
Diagram node	Two PMOD connectors From architecture diagram labels on page 6	6
Diagram node	CM5/CMS module area From architecture diagram labels on page 6	6
Diagram node	Clock Generator From architecture diagram labels on page 6	6
Diagram node	USB-C From architecture diagram labels on page 6	6
Diagram node	USB-A x2 From architecture diagram labels on page 6	6
Diagram node	HDMI x2 From architecture diagram labels on page 6	6
Diagram node	Ethernet From architecture diagram labels on page 6	6
Diagram node	MIPI x2 From architecture diagram labels on page 6	6
Diagram node	GPIO From architecture diagram labels on page 6	6
Diagram node	Prog HDR From architecture diagram labels on page 6	6

RPI 5 / CM5

Attribute	Value	Source
Processor	Broadcom BCM2712 quad-core 64-bit Arm Cortex-A76 SoC clocked at 2.4 GHz	6
Memory	LPDDR4X SDRAM in 2 GB, 4 GB, and 8 GB configurations; 16 GB variants expected in 2025; ECC support included	6
Storage	Onboard eMMC options: 16 GB, 32 GB, 64 GB; Lite version with 0 GB eMMC; 128 GB variants anticipated in 2025	6
Graphics	800 MHz VideoCore VII GPU supporting OpenGL ES 3.1 and Vulkan 1.2	6

Connectivity

Attribute	Value	Source
Wireless (optional)	Integrated 2.4 / 5.0 GHz IEEE 802.11 b/g/n/ac Wi-Fi and Bluetooth 5.0 BLE with switch for internal PCB trace or external antenna	6
Ethernet	Onboard Gigabit Ethernet PHY with IEEE 1588 support for precise time synchronization	6
PCIe	1x PCIe x1 Gen 2 root complex (5 Gbps), commonly used for high-speed peripherals such as NVMe SSDs via M.2 M-key socket on carrier boards	6
USB	Two USB 3.0 ports (5 Gbps simultaneous operation) and one USB 2.0 port (high speed)	6
Video interfaces	Two HDMI 2.0 ports capable of simultaneously driving dual 4Kp60 displays	6
Camera/display interfaces	Two 4-lane MIPI ports configurable for either DSI (display) or CSI-2 (camera)	6
GPIO	Up to 30 configurable GPIO pins supporting 1.8 V or 3.3 V signaling, including UART, I2C, SPI, SDIO, DPI, I2S, and PWM	6

Generated from the structured Setanta product catalog. Detailed electrical and mechanical specifications are available through direct mission review where applicable.