INTERFACES & MIXED-SIGNAL

Garmo-USB3.2-PHY

USB router and PHY-control architecture with a release-specific compliance and analog boundary.

IP-2094 · Evaluation package · Evaluation / IP scope

Function and architecture

- PAM3 Gen4 digital PCS and lane bonding
- USB3, DisplayPort and PCIe tunneling router with bandwidth arbitration
- 80 Gb/s certified-mode target and 120 Gb/s asymmetric display-oriented mode

Integration summary

Garmo-USB3.2-PHY integration role: High-Speed I/O — USB4 v2 / USB 80Gbps router + PHY digital subsystem. Documented composition: PAM3 Gen4 digital PCS and lane bonding; USB3, DisplayPort and PCIe tunneling router with bandwidth arbitration; 80 Gb/s certified-mode target and 120 Gb/s asymmetric display-oriented mode.

Technical record

Canonical identity	IP-2094
Responsibility	High-Speed I/O — USB4 v2 / USB 80Gbps router + PHY digital subsystem
Documented interface architecture	USB4 Gen4 PHY boundary, protocol adapter ports, PCIe/DP tunnel interfaces, Type-C/PD sideband
Documented building blocks	PAM3 Gen4 digital PCS and lane bonding; USB3, DisplayPort and PCIe tunneling router with bandwidth arbitration; 80 Gb/s certified-mode target and 120 Gb/s asymmetric display-oriented mode
Delivery boundary	Evaluation / IP scope
Evidence scope	Evaluation package
Architecture targets · not measurements	20/40/80 Gb/s symmetric; optional 120/40 Gb/s asymmetric mode; backward USB compatibility.

Delivery and release binding

- Interface version and parameter set
- Clock/reset domains and integration constraints
- Companion memory, PHY and software requirements
- Verification collateral and acceptance criteria

Confirm for the selected release: Node/library binding, Clock/reset limits, Physical and protocol dependencies, Artifact hashes, Acceptance criteria.

Evidence and qualification

Canonical technology and its architecture/integration role are recorded. The offered delivery is confirmed against the exact release before licensing.

Control/model IP does not establish analog PHY, electrical, RF or standards compliance. Qualified third-party or foundry collateral may be required.

Canonical status: P2 / REPRESENTATIVE ARCHITECTURE RTL — concrete integration specification and synthesizable RTL shell/representative datapath only; all frequency, throughput, power, area, jitter and standards-superiority figures remain architecture targets until the required evidence hierarchy closes. Electrical/PHY production claims require a characterized foundry/node hard-macro backend plus package/channel and compliance evidence.

Evaluation and licensing

Evaluation: Evaluate an individual IP configuration. Production: Named-design production license. Custom work: Node binding or derivative integration. Rights, pricing, support and acceptance criteria are agreed for the exact scope.

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