Chronos Tech LLC

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Multi-Gigabit Fully Digital SerDes IP for PPA Boost

Chronos Digital SerDes is a high-performance, low-power and highly scalable SerDes PHY that supports all leading ARM AMBA or RISCV standards, such as AXI, ACE, CHI, TileLink (or custom variation of those) and is fully deployable by standard digital tools and flows.
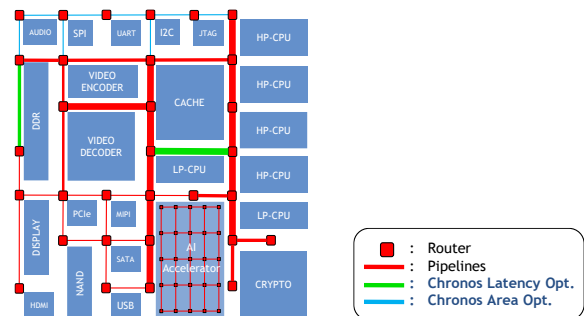
Features

- **Digital Low-Latency Communication**
  Safe and secure digital encoding with low EMI profile and high throughput
- **Clockless Serialization**
  End-to-end protocol compatibility while enabling link width reduction. No high-speed clocks, PLL or DLL needed.
- **Soft IP**
  Deployable by standard Digital tools and flows. No Analog blocks. Fully customizable. Automated netlist and constraints generation.
- **Embedded on-Die Telemetry**
  Performance and margin measurement available on a sub-channel base.
- **Design Space**
  Data Center/HPC, Automotive, Cloud AI, 3D-Interconnect (Hybrid Bonding TSV), Edge.

Benefits

- **Performance**
  Best in Class end-to-end latency, (700ps/mm*). Low Power (0.05 pJ/bit/mm*, no Analog signaling), Scalable (not limited in distance). Bus width reduction up to 86%. Silicon Proven.
- **Resiliency**
  Resilient to PVT. Designed for WC, but operates on TYP. Safe and Secure (low EMI, protected against DPA Attacks)
- **Ease of Use**
  Easier timing closure. Insensitive to clock degradation. Standard Sign-off methodology. Automated deployment within standard tools.
- **Unmatched Testability**
  Patented on-Die telemetry for on-chip measurement and tuning. Enables Power reduction.

Use Case: SoC PPA Boost

- Removal of existing PPA bottleneck:
  - Improved Latency on timing critical links
  - Improved Congestion (routing reduction)
- Direct swap of existing links (AMBA/TileLink)
- Per link on-chip telemetry.
- Quick re-spin for next generation SoC.

	: Router
	: Pipelines
	: Chronos Latency Opt.
	: Chronos Area Opt.

About Chronos Tech LLC:

We are US based company developing game changing IPs to enable next-generation intelligent System-on-Chips (SoCs) targeting a wide range of applications, from cloud computing and AI to mobile and automotive.
https://www.chronostech.com

* Based on 7nm TSMC Silicon