

Waylon Peters

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SUMMARY

SoC and **subsystem architecture** leader with 18 years of semiconductor experience across RTL design, **IP integration**, platform architecture, **verification** strategy, and production silicon delivery. Converts product requirements into implementable specifications that balance performance, power, area, security, firmware needs, and physical design constraints. Leads architecture exploration, IP selection, subsystem modeling, simulation, protocol analysis, verification planning, **silicon bring up**, debug, and performance characterization. Deep experience with Verilog, SystemVerilog, AMBA AXI, APB, CHI, DDR, PCIe, Ethernet, USB, UFS, SystemVerilog UVM, BFM, synthesis, lint, CDC, low power design, and PPA analysis. Aligns hardware, firmware, software, design verification, and physical design teams while mentoring engineers and reducing integration risk across AI, automotive, networking, and connected device platforms.

EXPERIENCE

Principal SoC Architect, Platform Subsystems

July 2022 to Present

VertexCore Microelectronics

Austin, TX

Owns architecture for compute, memory, interconnect, PCIe, security, and power managed subsystems. Translates enterprise requirements into specifications, validation plans, PPA tradeoffs, and production readiness decisions while coordinating hardware, firmware, software, verification, and **physical design** teams.

- Translated product requirements into subsystem **specifications**, acceptance criteria, and implementation plans.
- Modeled AXI, CHI, APB, DDR, and PCIe dataflows for integration risk reviews.
- Directed UVM validation planning for protocol behavior, performance corners, and **power** states.
- Resolved silicon readiness issues through **simulation**, protocol debug, and cross team reviews.
- Guided architecture decisions balancing **performance**, power, area, **security**, and firmware needs.
- Mentored engineers through design reviews, documentation standards, and integration risk reduction.

Senior SoC Architect, Automotive Compute

March 2018 to June 2022

Ardent Logic Systems

Raleigh, NC

Led automotive compute and edge AI architecture for interconnect and memory subsystems. Coordinated RTL, design verification, firmware, software, synthesis, and physical design contributors through architecture definition, implementation, validation, and release readiness.

- Architected automotive compute and edge AI memory paths with DDR and **PCIe interfaces**.
- Used **synthesis**, lint, CDC, and low power flows to expose implementation risks early.
- Defined verification requirements for protocol compatibility, performance corners, and power state transitions.
- Coordinated **RTL**, **firmware**, software, and physical design reviews for production delivery.
- Investigated **Ethernet** and interconnect performance issues through simulation and targeted protocol analysis.
- Mentored engineers on architecture writing, risk review, and practical subsystem integration.

SoC Integration Architect, Application Processors

August 2013 to February 2018

BluePeak Semiconductor

San Jose, CA

Led application processor IP integration and subsystem architecture across communication, peripheral, and memory functions. Produced implementation guidance, integrated interfaces, aligned verification environments, and supported production silicon debug with cross disciplinary teams.

- Integrated **Verilog** and **SystemVerilog** IP through AXI, APB, USB, UFS, and Ethernet interfaces.
- Created BFM based test environments for interoperability checks and integration validation.
- Documented **dataflow**, **firmware expectations**, interface behavior, and implementation requirements.
- Closed integration defects through simulation, debug sessions, and focused verification reviews.
- Supported **silicon bring up** with protocol analysis and **performance characterization** activities.
- Coordinated specialists across architecture, RTL, verification, firmware, and physical design.

Senior RTL Design Engineer, Memory and Peripherals

June 2010 to July 2013

Northstar Circuits

Phoenix, AZ

Designed memory control and high speed peripheral RTL for production SoC programs. Combined SystemVerilog design, simulation, synthesis, lint, and CDC analysis with clear specifications and close coordination across verification and implementation teams.

- Designed SystemVerilog memory control RTL for **AXI** and **APB** connected subsystems.
- Used simulation, synthesis, **lint**, and **CDC** analysis to improve RTL quality before handoff.
- Built protocol checks for interface behavior, reset sequencing, and corner case coverage.
- Partnered with verification engineers on test planning, **debug**, and closure decisions.
- Reviewed implementation tradeoffs affecting timing, power, **area**, and integration risk.

- Supported production readiness through documentation, defect triage, and design reviews.

RTL Design Engineer, Embedded Communications

June 2008 to May 2010

MesaWave Technologies

Tempe, AZ

Developed embedded SoC peripheral and communication RTL for early production platforms. Built practical design and testbench solutions, supported interface validation, and collaborated with senior engineers on lint, CDC, and release activities.

- Developed Verilog peripheral RTL connected through APB and internal FIFO structures.
- Built testbenches for **communication** paths, reset behavior, and basic protocol validation.
- Applied lint and CDC analysis before design reviews and implementation handoff.
- Debugged simulation failures with waveform analysis and focused reproduction cases.
- Documented interface behavior and test expectations for verification partners.
- Supported release readiness through defect tracking, reviews, and integration assistance.

PROJECTS

Edge AI Interconnect Analysis 📅 2022

Compared interconnect dataflows, memory access patterns, and protocol behavior for an edge AI subsystem, producing architecture guidance for performance, power, area, and firmware coordination.

Automotive Memory Subsystem 📅 2020

Defined a production focused memory subsystem concept using DDR, AXI, CDC, low power analysis, and verification planning for automotive compute requirements.

High Speed Peripheral Integration 📅 2016

Integrated USB, UFS, Ethernet, and APB connected IP with BFM based validation, interface documentation, and targeted protocol debug.

LEADERSHIP & AWARDS

- Technical leadership recognition for production SoC architecture and cross functional delivery, 2024.
- Architecture contribution award for reducing subsystem integration risk across automotive compute programs, 2021.
- Mentor recognition for supporting engineers through design reviews and verification planning, 2023.

EDUCATION

Master of Science in Electrical Engineering

2008

Arizona State University GPA: 4.0

Tempe, AZ

Coursework: Digital systems, computer architecture, semiconductor design, integrated circuit design

Bachelor of Science in Computer Engineering

2006

University of Arizona GPA: 4.0

Tucson, AZ

Coursework: Computer architecture, digital logic, embedded systems, hardware design

CERTIFICATIONS

- Cadence SystemVerilog and UVM Advanced Verification Training 📅 2024
- Siemens EDA CDC and RTL Quality Workshop 📅 2023

TECHNICAL SKILLS

- RTL Design:** Verilog, SystemVerilog, RTL
- Verification:** UVM, BFM, testbenches
- AMBA Protocols:** AXI, APB, CHI
- Memory Interfaces:** DDR, memory controllers, dataflow
- High Speed Interfaces:** PCIe, Ethernet, USB
- Storage Interfaces:** UFS, firmware interfaces, protocol debug
- Design Quality:** Synthesis, lint, CDC
- Low Power Design:** Power states, power intent, PPA analysis
- Architecture Methods:** IP selection, subsystem modeling, simulation
- Silicon Delivery:** Silicon bring up, debug, performance characterization

SKILLS

- SoC Architecture
- Subsystem Architecture
- IP Integration
- Verilog
- SystemVerilog
- RTL Design
- UVM
- BFM
- AXI
- CHI
- APB
- DDR
- PCIe
- Ethernet
- Silicon Bring Up

PROFESSIONAL AFFILIATIONS

- Technical Mentor, Semiconductor Architecture Mentoring Circle, 2021 to Present.
- Technical Program Volunteer, IEEE Solid State Circuits community, 2019 to Present.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST