

SOFTWARE CATALOG

PCB DESIGN SOFTWARE & TOOLS CATALOG

A Comprehensive Guide to the Industry's Leading
Engineering Platforms

— 01. Introduction to PCB Design Software

The modern PCB design landscape requires a sophisticated ecosystem of tools to manage increasing complexity, higher speeds, and tighter tolerances. This catalog outlines the primary software suites utilized by AEARPCB to ensure \"Right-First-Time\" manufacturing and superior signal integrity.

— 02. Schematic Design Tools

Precision begins at the schematic level. We utilize industry-standard capture tools that support hierarchical design and seamless netlist integration.

OrCAD Capture (Cadence)

The industry standard for schematic entry. Offers powerful component management and intelligent part search capabilities.

DxDesigner (Siemens/Mentor)

Enterprise-level design definition tool. Supports multi-site collaboration and complex constraint management.

— 03. Layout Software Comparison

Software	Primary Strength	Target Industry	Native Output
Altium Designer	Unified Environment / 3D Engine	Consumer/Industrial	Altium Project / ODB++
Allegro PCB	High-Speed Routing / Constraints	Enterprise/HPC	BRD / Artwork
KiCad Pro	Open-Source Flexibility	R&D / Prototyping	Gerber X2

— 04. Stackup Simulation

Polar Si9000

Advanced field solver for impedance design. Provides accurate modeling for microstrip, stripline, and differential pairs.

SpeedingEdge

Specialized tools for ultra-high-speed materials selection and dielectric loss modeling.

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05. SI/PI Analysis

Signal Integrity (SI) and Power Integrity (PI) are critical for modern high-speed designs. Our simulation workflow identifies potential issues before fabrication.

HyperLynx (Siemens)

Fast and accurate SI/PI/Crosstalk analysis. Essential for DDR4/5 and high-speed SerDes verification.

Ansys ADS

Advanced Design System for RF and Microwave applications. Deep EM simulation for complex antenna integration.

06. Gerber Verification

CAM350 (DownStream)

Comprehensive CAM verification tool. Ensures that what is designed can be accurately manufactured.

ViewMate Pro

High-precision Gerber viewing and DFM checking for final layer-by-layer inspection.

— 05. SI/PI Analysis

Valor NPI (Siemens)

The industry's most powerful Design for Manufacturing tool. Valor bridges the gap between design and the shop floor, identifying over 900+ potential manufacturing issues.

— 08. 3D Visualization

SolidWorks Bridge (MCAD/ECAD)

Enables real-time collaboration between electrical and mechanical engineers. Ensure perfect fitment in enclosures and check thermal clearance.

— 09. Recommended File Templates

AEARPCB provides pre-configured templates to accelerate your design cycle and ensure compliance with manufacturing standards.

— 10. Productivity & Collaboration

Altium 365

Cloud-based collaborative design platform. Enables version control, component sourcing, and supply chain transparency.

Siemens Nexus

Global enterprise collaboration for Mentor/Xpedition users. Manages design data across large distributed teams.

— 11. Software Selection Guide

Use this checklist to determine the optimal toolset for your specific project

Template Type	Standard	Application
4-Layer Standard Stackup	IPC Class 2	General Electronics
High-Density (HDI) Base	IPC Class 3	Aerospace / Military
Impedance Control Pack	JEDEC	DDR / USB / PCIe
Rapid Prototyping / Budget	Medium	KiCad / Altium