Board Design Process

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Board Design Process

	Specification	Board Design	Testing & Debugging	Other	Production
Board Development	Research Marketing: How it is going to be different from others 市场：它将与众不同 Decide on: CPU, Format & Size, Functionality, Peripherals & Interfaces, Compatibility, Pinout, Connectors, Mounting holes, ... 确定：CPU，格式和大小，功能，外围设备和接口，兼容性，引脚分配，连接器，安装孔，... Buy Existing Boards to study & test them 购买现有板以研究和测试它们 Search for the supporting stuff: Display, Camera, ... 搜索支持的部件：显示器，照相机，. Connect reference boards with wanted peripherals and debug 将参考板与所需的外围设备连接并进行调试 Compare & Test: e.g. Performance 比较和测试：例如性能	Get information: Datasheets, Reference Designs, Design Guides, Application notes, Errata, ... 获取信息：数据表，参考设计，设计指南，应用笔记，勘误表 Schematic Design 原理图设计 Component selection: Ok for mass production (price, EOL, reliable chip manufacturer, availability and lead time, possible replacements or alternatives, ...), temperature range, footprint (considered for easy assembling) 元件选择：可以批量生产（价格，停产，可靠的芯片制造商，可用性和交货时间，可能的替换或替代...），温度范围，封装（考虑易于组装） Library Design: Component = SCH Symbol + PCB Footprint + Purchasing info + Lifecycle 库设计：元件= SCH符号+ PCB封装 +采购信息+生命周期 Buy samples from all the components 购买所有元件的样品 Small test board designs, to verify functionality of unknow and new circuits 小型测试板设计，可验证未知电路和新电路的功能 PCB Design PCB设计	Hardware Testing & Verification: - Measurements (Voltages, Currents, Ethernet, USB, etc) - Burn in tests (memories + peripherals) - Environmental chamber test - Long run test - Preliminary: EMC/EMI, ESD, Vibration, ... Debugging: If something in hardware is not working, find out what the problem is and fix it 硬件测试与验证： -测量（电压，电流，以太网，USB等） -烧录测试（内存+外设） -环境室测试 -长期测试 -初步：EMC、EMI，ESD，振动，... 调试：如果硬件中的某些功能不起作用，请找出问题所在并进行修复	Improving, new version / revision: - Fixing circuit issues - Fixing problems found during PCB manufacturing, board assembly, mechanical issues, software & hardware incompatibility, ... Certification: - EMCI/EMI, ESD, .. The production test hardware design: - Designing Hardware needed to test the manufactured boards Designing the supporting hardware: - Developing hardware which will be shipped with the main product e.g. Adapter boards, breakout boards, ... Documentation: Manual, datasheet, website, ...	改进中，新版本修订： -解决电路问题 -解决在PCB制造，电路板组装，机械问题，软件和硬件不兼容，...期间发现的问题 认证： -EMCI、EMI，ESD，.. 生产测试硬件设计： -测试成品板所需的设计硬件 设计支持硬件： -开发将与主要产品一起提供的硬件，例如转接板，分线板，... 文档：手册，数据表，网站等...
Software Development	Create basic software to test if the hardware will work oki 创建基本软件以测试硬件是否可以正常工作	硬件验证测试软件： -Bring up（测试基本功能） -测试软件和应用程序以验证硬件并测试所有外围设备	Hardware verification test software: - Board bring up software Test software and applications to verify hardware and test all peripherals Debugging: some software development requires a lot of debugging (especially if there is also a hardware problem) 调试：一些软件开发 需要大量调试（特别是如果还有硬件问题）	Software: - Software which will be shipped with the board and/or used by users and customers 软件： -随板一起提供或供用户和客户使用的软件 Production Test software: - Software which will make it easy to test boards after they are manufactured 生产测试软件： -易于在制造后，测试板的软件	
Mechanical	Search for supporting stuff: Enclosure, Heatsink, How it is going to be sold to customers 搜索支持部件：外壳，散热器， 如何将其出售给客户	Heat distribution, Cable design, Enclosure design, .. 热分布，电缆设计，外壳设计，..		Improving: - If needed, adjust all the mechanical designs Designing the support for production test: - Test fixture - Test cables	改善： -如果需要，调整所有机械设计 设计生产测试支持： -测试夹具 -测试电缆