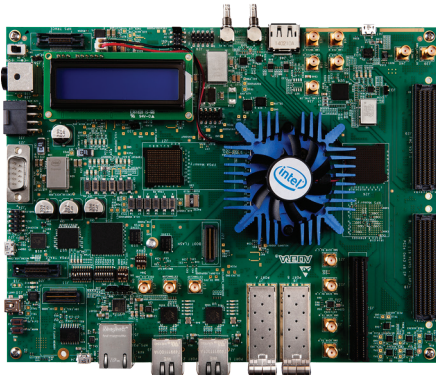


Intel® Arria® 10 FPGA and SoC Power Reference Design

with Intel® Enpirion® Power Solutions



Designed and Validated to Work Together: Intel® Arria® 10 FPGAs and SoCs and Intel® Enpirion® Power Solutions

Intel knows how to power FPGAs. Intel® Enpirion® devices are highly integrated and efficient, and are designed, tested, and validated to exceed Intel® Arria® 10 FPGA power requirements. Take full advantage of Intel Arria 10 FPGA features and performance without sacrificing board space or power budget with Intel Enpirion Power Solutions.

The Intel Arria 10 FPGA or SoC Power Reference Design demonstrates a complete power solution for a 30W core Intel Arria 10 FPGA or SoC with complementary peripherals. This reference design provides complete power tree schematics. Intel implemented the design in hardware to perform an extended suite of system power testing and validation.

Reference Design Performance

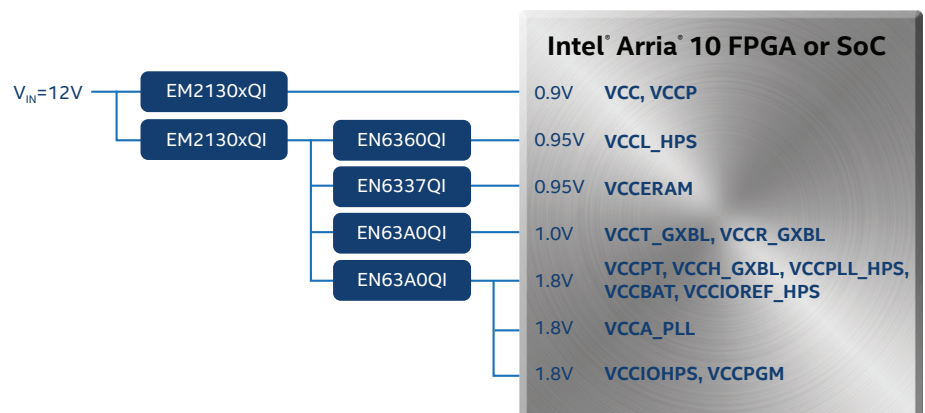
Exceeds Intel Arria 10 Device Steady-State and Dynamic Power Requirements

- Achieves ± 10 mV static AC+DC accuracy[†]
- Achieves $< 2\%$ deviation during 50% load transient[†]

Delivers Up to 30W Power for Intel Arria 10 FPGA or SoC Cores with Intel's EM2130xQI 30A Digital PowerSoC

- Footprint compatible and scalable from 20W to 40W with EM2120xQI and EM2140xQI PowerSoCs

Simplified Reference Design Power Tree - Intel Arria 10 FPGA or SoC Power



Recommended Intel Enpirion Power Solutions for Intel Arria 10 FPGAs and SoCs

| POWER RAIL CURRENT REQUIREMENT | FOOTPRINT-OPTIMIZED SOLUTION | PERFORMANCE-OPTIMIZED SOLUTION |
|--------------------------------|------------------------------|--------------------------------|
| ≤0.4A | EP5348UI | EP5348UI |
| ≤0.6A | EP5357xUI, EP5358xUI | EP5357xUI, EP5358xUI |
| ≤0.8A | EP5388QI | EP5388QI |
| ≤1.0A | EP53A7xQI, EP53A8xQI | EN6310QI |
| ≤1.5A | EP53F8QI | EN5319QI |
| ≤2.0A | EN5329QI | EN5329QI |
| ≤3.0A | EN5339QI | EN6337QI |
| ≤4.0A | EN6340QI | EN6340QI |
| ≤6.0A | EN6363QI | EN6362QI |
| ≤8.0A | EN6382QI | EN6382QI, EN6360QI |
| ≤12.0A | EN63A0QI | EN63A0QI |
| ≤20.0A | EM2120xQI | EM2120xQI |
| ≤30.0A | EM2130xQI | EM2130xQI |
| ≤40.0A | EM2140xQI | EM2140xQI |

Related Links

- Learn more about the Intel Arria 10 FPGA or SoC Power Reference Design at www.altera.com/products/reference-designs/all-reference-designs/power/arria-10-power-ref-design.html
- Intel Enpirion Power Solutions www.altera.com/enpirion
- Intel Enpirion Digital PowerSoCs www.altera.com/digitalpower



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¹Tests measure performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. Consult other sources of information to evaluate performance as you consider your purchase. For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.