



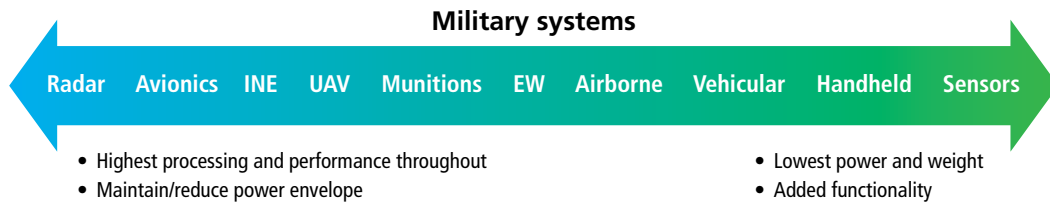
Part of our Enhanced COTS PLD Initiative

Altera addresses the SWaP challenge

Altera is a perfect fit for SDR, airborne and vehicular systems, munitions, avionics, and radar, among many other applications.

You can count on Altera to lead the programmable industry, in reducing size, weight, and power (SWaP) for all your military and aerospace applications. Altera® Enhanced COTS solutions meet and often exceed the demands of extreme battlefield scenarios, especially where SWaP is at issue. By choosing to partner with Altera, you can win contracts by cutting SWaP in software defined radios (SDR), airborne and vehicular systems, munitions, avionics, and radar, among many other applications. With Altera you'll be able to design the best equipment possible—long battery life, light weight, and small form factor—for secure communications platforms as well as for radar and electronic warfare systems.

SWaP sensitivity spectrum



Altera SWaP advantages for SDR

Our Cyclone® III FPGAs give you an unprecedented combination of low power, high functionality, and low cost for SDR. Using a 65-nm low-power (LP) process technology, Cyclone III devices have the lowest static power in the industry, as much as 90 percent less than competing FPGAs.

With Cyclone III low-power FPGAs in your SDR designs, you can:

- Utilize smaller batteries and power supplies
- Relax thermal cooling requirements, including heat sinks, fans, and chassis configurations
- Redirect power budgets to other functions, such as RF transmit power and increased CPU processing to reduce SWaP in the overall system.

Altera Stratix III FPGAs deliver the most functionality per watt available today in 65-nm FPGAs.

The Altera SWaP advantages in radar and electronic warfare

Altera Stratix® series FPGAs deliver the most functionality per watt available today in 65-nm FPGAs so that radar system designers have unprecedented flexibility in the power/performance tradeoff. Seamless and risk-free SWaP migration from Stratix series FPGAs to ITAR-compliant structured ASICs reduces size, heat, and power by up to 50 percent. Bare die sales, MCMs and small form factor packaging options are supported in Stratix III FPGAs for optimal size reduction.

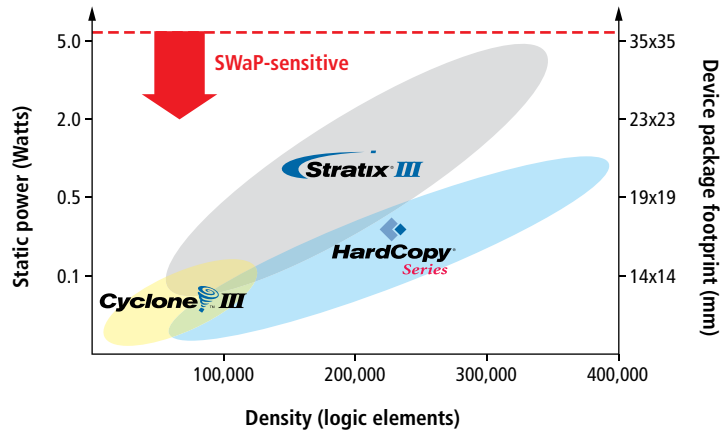
With Stratix series FPGA Programmable Power Technology and selectable core voltage, our devices in your radar front ends can:

- Support larger radar arrays in the same power envelope
- Lower cooling requirements and reduce weight
- Move more functionality to radiating elements for more beam control
- Increase processing bandwidth and stay within power budgets
- Add features to your existing radar installation
- Reduce noise temperature for increased resolution

Cyclone III 65-nm FPGAs—a disruptive technology delivering 1/10th the static power over competing FPGAs, supporting complete waveform integration in under 200 mW.

Meeting SWaP needs with 65 nm

Get the most value per watt with Cyclone III FPGAs and the most functionality per watt with Stratix III FPGAs.



Altera solutions that beat the SWaP challenge

Device	Requirements	Device solutions
Cyclone Series low-power FPGAs—industry's lowest static power FPGA	Low power	<ul style="list-style-type: none"> Reduce power for longer batter life in portable systems—1/10th the static power of competing FPGAs
	High density	<ul style="list-style-type: none"> Up to 120K logic elements (LEs), 4-Mbit embedded memory, and 288 embedded multipliers for complete waveform integration
	Reduced size and weight	<ul style="list-style-type: none"> Reduced power lessens requirements on thermal management, power supplies, and batteries; less heat means you can reduce weight while increasing battery life in portable systems 0.8-mm ball-grid array (BGA) packages (14 x 14 mm²) minimize board space; bare die support for multi-chip module (MCM) integration, or smaller packaging options
	Other features and functionality	<ul style="list-style-type: none"> Industrial and extended temperature support for harsh operating environments Scalable to support multiple form factors and waveforms The Altera Enhanced COTS PLD Initiative—extended feature sets designed to specifically support military applications
Stratix Series high-performance FPGAs—flexible management of power and heat	Low power	<ul style="list-style-type: none"> Stratix III FPGA Programmable Power Technology and selectable core voltage and Quartus® II software PowerPlay power optimization technology allows you to calculate and manage trade-offs between power and performance
	High density	<ul style="list-style-type: none"> Up to 340K LEs and 16-Mb RAM; up to 900 digital signal processing blocks (DSP) means maximum system integration
	Reduced size and weight	<ul style="list-style-type: none"> Reduced power lessens requirements on thermal management; less heat means less weight and more processing performance per board
	Other features and functionality	<ul style="list-style-type: none"> Industrial and military temperature support for harsh operating environments IP support for military backplane standards (Serial RapidIO®, 10 Gigabit Ethernet, Fibre Channel, and more) The Altera Enhanced COTS PLD Initiative—extended feature sets designed to specifically support military applications
HardCopy® structured ASICs—seamless migration to lowest power	Low power	<ul style="list-style-type: none"> Up to 90 percent lower static power and up to 50 percent lower dynamic power than the FPGA
	High density and performance	<ul style="list-style-type: none"> Up to 2.2M logic gates and 1.4M DSP gates. Up to 2X FPGA performance
	Other features and functionality	<ul style="list-style-type: none"> Single event upset (SEU) mitigation, including high levels of immunity to soft errors ITAR-compliant design and manufacturing flow Seamless migration from FPGA

Want to dig deeper?

Logon to our website or call your local Altera sales representative today to learn more about how you can solve your SWaP design challenges with Altera FPGAs.

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