Explore, Acquire, Analyze, Decide.
Deliver Sooner, Better.
Altera’s Military Temperature and High-Reliability Product Support

Single-purpose embedded electronics design is the old way of doing business. Today’s military platforms rely on design re-use, cross-platform design, and multiple embedded processing element variants. This means that the selection of an FPGA or other embedded platform needs to be based on a forward-looking strategic plan for platform extensibility into land, air, sea, space, and cyber space.

Altera has supported multiple defense customers in specifying, qualifying, and in some cases redesigning product packaging in order to support extended military temperature ranges of -55°C to 125°C. Devices are qualified for a subset of transceiver protocols, as documented in military temperature application notes.

All of these devices are pin compatible to commercial and industrial temperature versions of the product, enabling extensible platform design across a variety of operating environments.

Using Military Featured FPGAs Across Multi-Platform Designs

Altera Legacy of Military Temperature and Leaded Device Support

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All device testing, screening, and qualification occur within Altera Corporation. This fact, coupled with Altera’s proven superior product longevity over competing commercial and military FPGAs, provides your system the maximum assurance of long term product support and product longevity.


Altera provides leaded and high reliability versions of all product families. Contact your Altera representative for an exact list of ordering codes that support leaded solder balls.
Because all military temperature and leaded Altera products are produced in-house, lead times are considerably lower than competing defense-grade FPGA products. For legacy products (Stratix IV and prior), lead times can be as little as 10 weeks for fully military temperature qualified devices.

Stratix V military temperature devices will have lead times comparable to existing commercial and industrial temperature devices, and designs with military temperature Stratix V devices is available beginning in Quartus® II software v14.1.

Arria 10 FPGAs and SoCs are characterized and qualified in military temperature versions in parallel with the roll-out of the extended and industrial versions of the product. Designers can begin designs at full military temperature beginning in Quartus II software v15.0, with device availability varying by device density in 2015. Contact your Altera representative for additional details.

### Availability and Lead Times

Military temperature Arria 10 FPGAs and SoCs will be characterized over the full temperature range of -55°C to 125°C ambient temperature, including device configuration at both temperature extremes. All devices will be initially offered in leaded packaging. Supported interfaces will include GigE and 10GigE, Altera’s SeriaLite III up to 12 Gbps, JESD204B up to 12 Gbps, and Serial Rapid I/O® (SRIO) Generations 1 and 2. Other protocols can be characterized and tested upon customer request.

Arria 10 FPGA will support external memory interfaces as well at the full military temperature range, including DDR3, DDR4, RLDRAM 3, QDR IV, and LPDDR3. Final interface data rates supported will be published upon completion of characterization, but Altera can provide target clock rates to qualified customers. Additional memory interface standards can be characterized and tested upon customer request.
Learn More About Military Temperature Testing and Qualification

A profile of existing Altera products that have been qualified for military temperature ranges can be found at:


This page include product qualification statements, application notes, and ordering codes for existing products, and forward ordering and pin compatibility design information for the Stratix V and Arria 10 military temperature qualified products.