



AHEAD OF WHAT'S POSSIBLE™

# PHASED ARRAY

Speed-to-market, size, and ease of integration are more critical than ever. ADI gives you everything you need to simplify architecture and accelerate design. Having access to the industry's broadest portfolio enables you to optimize at both the semiconductor and integrated subsystem levels—and efficiently drive phased array innovation.



#ADIAhead

ENABLE YOUR DESIGNS WITH THE INDUSTRY'S LEADING ANTENNA-TO-BITS SUPPLIER.

[analog.com/phasedarray](http://analog.com/phasedarray)

ADI is breaking down the barriers of phased array design to help you solve your customers' problems so you can develop the right solutions and get them to market fast.

We understand the importance of having a partner who can respond quickly with a wealth of phased array experience and the industry's broadest portfolio of components and technologies. A partner with comprehensive integration and packaging capabilities to deliver what you need, from raw die to integrated solutions. And a partner with more than 50 years of insight, experience, proven results, and an established brand within the aerospace and defense community.



## Radar

Phased array radar technology offers significant improvements to performance and flexibility, which are driven by advances in semiconductor processes and integration that delivers exceptional capability in highly integrated solutions. In the air or on the ground, discover how our comprehensive portfolio, custom development expertise, systems knowledge, and innovation in fabrication processes can help you meet your most challenging critical requirements.

### **L- and S-Band (1 GHz to 4 GHz) Radar Designs**

Integrated transceivers and high speed converters enable direct sampling architectures that address size, weight, and power requirements while maintaining high levels of performance.

### **Systems Above S-Band Utilizing Analog Beamforming (ABF) Techniques**

ADI's new integrated radar core chip devices combine gain, phase, and amplifier control for multiple channels into a single small package. These, coupled with our transmit and receive modules (TRM), provide a more integrated and efficient solution compared to discrete implementations.

### **Innovations in Fabrication and Manufacturing**

Gallium nitride (GaN) and system-in-package (SiP) processes, allow for higher performance in smaller form factors.



## Space

Phased array technology is meeting the demand for increased on-the-go bandwidth in satellite communications (satcom) systems. Element-level control of the radio allows a transition away from legacy nonphased array systems that provided only large sub-beam formation, limiting access and throughput. Next-generation phased array satcom will enable multiple independent localized and focused radio channels, greatly increasing simultaneous access, coverage, and user throughput. ADI is creating the next generation of products that operate for an extended time in the harsh environment of space.

**Class S and Class K Radiation-Tolerant Space-Grade Parts**  
Available to create full signal chain solutions for next-generation satellites.

**Enhanced Performance Plus Product Line**  
Supports LEO multiple vehicle clusters for terrestrial communications.

**Advanced Module Packaging and Design**  
Hermetically sealed metal modules support advanced subsystems.



## Military Communications

Providing soldiers with real-time voice and data while in theater is critical for mission success. The backbone of this communication system relies on ground terminals that can access airborne and satellite transceivers to relay timely information. Next-generation phased array terrestrial and airborne systems will provide enhanced robust access to battlefield networks. While phased array technology provides great improvements in communications, it is also far more dependable and requires significantly less maintenance than older mechanically scanned and aligned dish systems.

**Advanced Solutions**  
ADI helps partners design small but highly effective phased array applications for both terrestrial and airborne communications.

**RadioVerse® Integrated Transceiver Packages**  
Enable rapid time to market.

**ADI Transceiver Components**  
Support the most challenging military frequency hopping requirements, while also meeting SWaP+C and performance expectations for future-generation systems.



## Electronic Warfare

Spectral dominance in the battlespace is more critical now than in any time in history. Phased array technology enables new solutions for electronic attack (EA), as well as electronic protection (EP) for systems, vehicles, and networks. For EA, phased array platforms will enable very tightly controlled directivity of jamming signals. This will improve accuracy and impact, reducing cosite blocking, as well as allowing for fast tracking on a moving target. For EP, phased array platforms will help locate hostile signals with greater precision in an electromagnetically noisy environment.

### Industry-Leading Gigasample per Second (GSPS) Analog-to-Digital Converters

With extended on board digital signal processing capability, they enable direct sampling of RF signals while maintaining high dynamic range and signal integrity, all while reducing power and component count.

### Complete Integrated Multichip Module Solutions

High performance, wideband RF technologies, such as GaN amplifiers, give partners a single system design source.



## Multichip Module Solutions

Multichip platforms and distributed systems require the phased arrays being used in radar, space, military communications, and electronic warfare to integrate more capabilities into ever shrinking form factors. ADI's Integrated Solutions Group has access to the thousands of die developed by ADI, as well as fully resourced module design and the manufacturing capabilities to address both high volume and high reliability system needs.

### Packaging

High volume onshore and offshore manufacturing of 2D, 2.5D, and 3D system-in-package (SiP) and connectorized modules for commercial, industrial, military, and space applications.

### Custom Module Designs

Our custom module designs include low phase noise synthesizers, wideband digitizer SiPs, high power amplifiers, inertial measurement units, and broadband frequency converters. In addition to our MMIC designers, ADI has a long history of designing custom modules for high reliability applications.

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