

AL5000 Family Chipset (AL5100/AL5301)

Worldwide Ultra Wideband (UWB) Chipset Covers Entire UWB Spectrum from 3.1–10.6 GHz

High Integration

Alereon's highly integrated AL5000 Family of Worldwide Ultra Wideband (UWB) chipsets integrates the RF transceiver, BBP/MAC, and firmware/software, to implement a complete WiMedia Ultra Wideband (UWB) product that supports all protocol adaptation layers, including Certified Wireless USB device and IP based protocols. The Alereon AL5000 family covers all worldwide band groups 1, 3, 4, and 6 from 3.1–10.6 GHz and was designed for desktop and laptop PCs; after market hubs, adapters, and cards; and embedded devices including PC peripherals, mobile handsets, and digital cameras, where space and power consumption are at a premium.

AL5100 RF Transceiver

The Alereon AL5100 transceiver integrates sensitive analog front-end components including synthesizer VCO/PLL, anti-alias filters, LNAs, PAs, and transmit/receive (T/R) switches, and supports a single-ended connection to the antenna eliminating external baluns. When combined with the Alereon AL5301 BBP/MAC, the AL5100 RF transceiver supports all current mandatory WiMedia specifications for worldwide band groups 1, 3, 4, and 6, including all TFCs 1–10.

AL5301 BBP/MAC

The Alereon AL5301 BBP/MAC integrates all digital and mixed-signal circuitry for a WiMedia UWB system providing high-speed wireless connectivity using either Wireless USB or IP-based WiMedia Link Layer Protocol. The AL5301 BBP/MAC uses a low-power, highly efficient RISC processor combined with high-precision hardware timers and specialized hardware for accelerating encryption, packet processing, and memory management. A programmable flexible host interface supports any one of multiple industry standards.

Programmable Host Interface

CF+/General Purpose 16-bit Parallel Interface

- > Supports CF+ Memory and I/O Modes
- > Supports Memory Mapped Interface
- > 8-Bit or 16-Bit Word Selectable
- > Read and Write times as short as 60 ns

SDIO

- > 1-Bit and 4-Bit Modes

USB ULPI

- > Compatible with USB 2.0
- > Configurable as host or device



Features

- Highly integrated RF Transceiver and BBP/MAC
 - Integrated synthesizer VCO/PLL
 - Integrated anti-alias filters
 - Integrated transmit/receive (T/R) switches, LNAs, PAs
 - Single-ended antenna connection eliminates external balun
- All Worldwide band groups 1, 3, 4, 6 (3.1 – 10.6 GHz)
- All TFCs 1–10 (TFI, FFI, TFI2), Total of 30 channels
- All WiMedia data rates: 53.3, 80, 106.7, 160, 180, 400, and 480 Mbps
- Flexible MAC protocol engine supports all industry standard WiMedia protocols including Wireless USB and IP based WLP
- 128-Bit AES Encryption for secure wireless link
- Programmable host interface:
 - CF+/General Purpose Parallel
 - SDIO
 - USB ULPI
- Wireless-on-the-Go™ enables peer-to-peer sharing
- Supports Alereon's NoWire™ driverless solutions

Firmware/Software

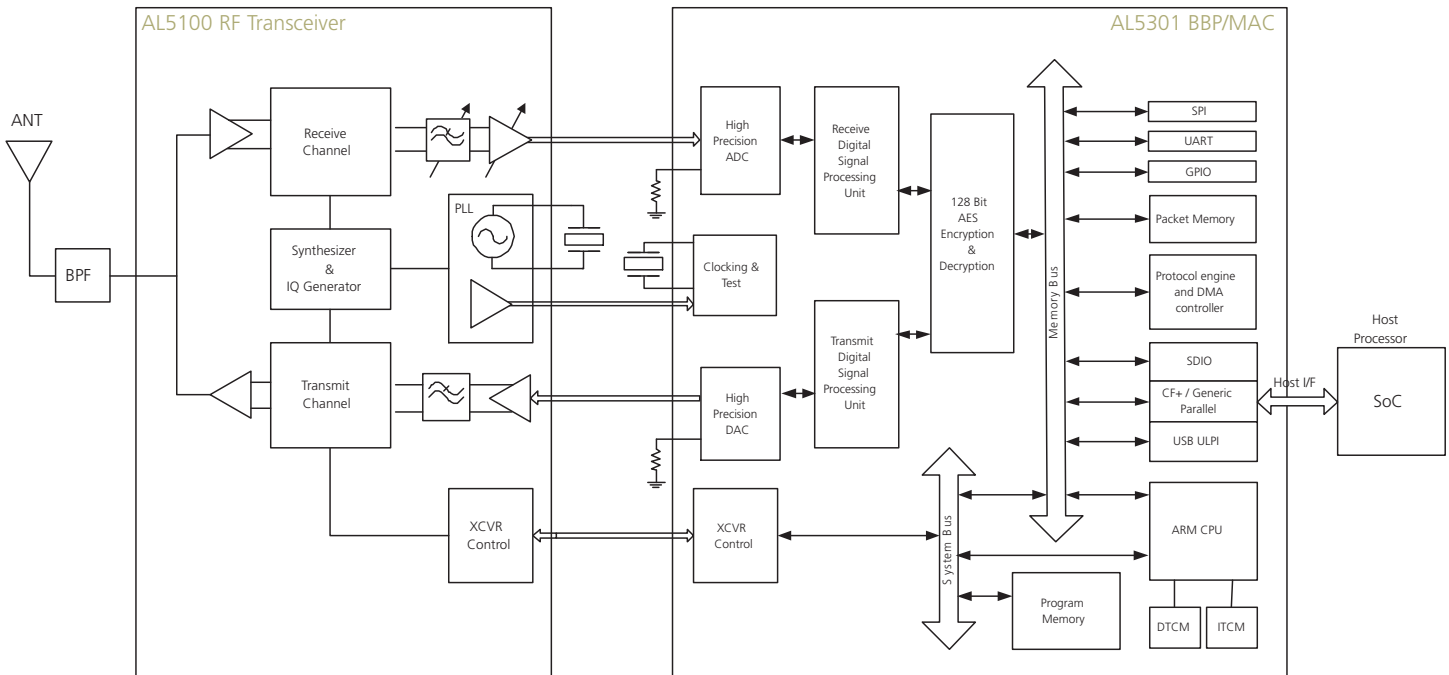
Alereon's firmware/software partitioning minimizes the memory and processing demands on the host application. Wireless USB software drivers are available for PC operating systems including Windows XP/Vista/Windows 7 and Linux, and popular embedded O/S including Windows CE/WM5.0, Linux, MAC OS and Android. Alereon's NoWire™ driverless firmware may be selected for true out-of-the-box plug and play applications. WLP firmware options are also available to support DLNA and other IP based applications.

Wireless-on-the-Go™

Alereon's innovative Wireless-on-the-Go™ technology enables peer-to-peer file sharing based on the AL5301 dual-role device capability. Selected applications include:

- > Printer hosted by a PC that simultaneously hosts a digital still camera/cell phone for image printing
- > Cell phone communicating directly with another cell phone
- > Personal media player communicating directly with another personal media player
- > Digital video camera or cell phone communicating to a TV
- > Set-top box communicating to a TV

Worldwide Wireless UWB System Block Diagram



AL5000 Family Chipset (AL5100/AL5301) Key Specifications	
Chipset	AL5100 RF Transceiver, AL5301 BBP/MAC
WiMedia Protocols	Wireless USB Host, Wireless USB Device Wireless USB Dual-Role Device, IP (WLP), DLNA
PHY Data Rates (Mbps)	53.3, 80, 106.7, 160, 200, 320, 400, 480
WiMedia Channels	TFC 1–10 (TFI, FFI, TFI2)
WiMedia Band Groups	1, 3, 4, 6 (3.1 – 10.6 GHz), Total of 30 channels available
Host Interface Options	CF+/Generic 16-bit Parallel, SDIO, USB ULPI

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For more information, register at <http://www.alereon.com/registration>

About Alereon

Alereon, Inc. is a fabless semiconductor company using industry standard Ultra Wideband (UWB) radio technology to develop low-power, blazing fast wireless solutions ideal for connecting media rich products and displays. Our mission is to enable consumers to simply and wirelessly stream real-time video and data from consumer electronics to HDTVs, monitors and laptops.

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