Analog-to-Digital Converter Solutions
We offer Analog-to-Digital Converters (ADCs) that combine high speed and high SNR performance with lowest power dissipation. These ADCs provide uniquely configurable functionality including: crosspoint switches, clock dividers and programmable sampling rates / resolution / number of channels.
Introduction

Standard Analog-to-Digital Converter Products

Hittite offers a wide range of High Speed ADCs for Communication, Instrumentation, Industrial, Medical & Military applications. Low power consumption & high performance is combined with a high degree of flexibility.

- **Sampling Rates:** 3 to 1000 MSPS
- **Resolution:** 8 to 14 bits
- **CMOS & LVDS Outputs**
- **Configurable Power Consumption & Functionality with SPI Settings**
- **Integrated Instrumentation Functionality**

Analog Made Easy™

With our Analog Made Easy™ philosophy, we are committed to user friendly products. We have built multiple features & functionality into our ADCs that make our products easy to use, thus reducing overall cost for the system designer.

- **EasySuite™:** Evaluation and Prototyping Platform Environment
- **EasyBoard™:** Supplied Evaluation Board Connected to Xilinx® Standard FMC Board
- **EasyStack™:** Firmware Code Stack, Currently Available for Xilinx®

Custom Analog-to-Digital Converter Solutions

Hittite offers ADCs with customer specified integrated functions.

- **Integrated LNA, VGAs and Analog Multiplexers (Analog Front End)**
- **Digital DownConverters (DDC)**
- **LVDS and JESD204 Outputs**
- **MCMs integrating RF and Microwave Functions with ADCs**
- **Ultra High Speed GSPS ADCs, page 10**

EasySuite™ Eval Kits

Custom Analog-to-Digital Converter Solutions

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- **Integrated LNA, VGAs and Analog Multiplexers (Analog Front End)**
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- **LVDS and JESD204 Outputs**
- **MCMs integrating RF and Microwave Functions with ADCs**
- **Ultra High Speed GSPS ADCs, page 10**
### High Speed, Low Power Analog-to-Digital Converters

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<th># of Channels</th>
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<td>81</td>
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</table>


Hittite has consolidated the original Arctic Silicon Devices (ASD) part number options by their sampling rates into 14 Hittite part numbers. No ASD parts were discontinued. Contact: adc@hittite.com
Digital Pre-Distortion (DPD) Receiver Subsystem Featuring the HMCAD1520

HMC860LP3E
High PSRR DC Regulator
• 3.35 V - 5.6 V

HMC660LP4E
6-Bit DATT
• DC - 6.0 GHz
• +55 dBm High IIP3

HMC101LP4E
RMS Power Detector
• DC - 3.9 GHz
• 37 mV/dB RSSI Slope
• 60 dB Dynamic Range

HMC830LP6GE
Wideband PLL + VCO
• 180 fs RMS Jitter
• Low Phase Noise,
-110 dBc/Hz @ 10 kHz

HMC820LP6CE
Tri-band PLL + VCO
• Low Phase Noise,
-110 dBc/Hz @ 10 kHz

HMC860LP6GE
• +5V
• +3V

NEW!
HMC830LP6GE [1]
Wideband PLL + VCO
• 180 fs RMS Jitter
• Low Phase Noise,
-110 dBc/Hz @ 10 kHz

NEW!
HMC1520
Dual Channel High Speed Mode
12-Bit A-to-D Converter
• 320 MSPS
• 2 Channels

[1] You may choose from a variety of HMC PLL+VCO combinations specific to your application
[2] You may choose from a variety of MMIC Mixers specific to your application
Direct Conversion Receiver with Diversity Featuring the HMCAD1520

HMC617LP3E [1] LNA, 55 - 1200 MHz
- 0.5 dB Noise Figure
- 24 dB Gain

HMC618LP3E [1] LNA, 1700 - 2200 MHz
- 0.75 dB Noise Figure
- 16 dB Gain

HMC817LP3E [1] Dual Channel LNA
- LNA: 1700 - 3300 MHz
- 0.5 dB Noise Figure

HMC818LP3E [1] Dual Channel LNA
- 1700 - 2200 MHz
- 0.5 dB Noise Figure

HMC597LP4E
Wideband Direct Demodulator
- 100 - 4000 MHz
- High Linearity: +25 dBm IIP3 & +60 dBm IIP2
- 15 dB Low Noise Floor

HMC900LP5E
Dual Baseband LPF
- 3.5 to 50 MHz
- 3 dB BW Programmable
- 12 dB Noise Figure
- +30 dBm IIP3

- Low Phase Noise, -110 dBc/Hz @ 10 kHz

HMC830LP6GE [2] Wideband PLL + VCO
- 180 fs RMS jitter
- Low Phase Noise, -110 dBc/Hz @ 10 kHz

HMC860LP3E
High PSRR DC Regulator
- 3.35 V - 5.6 V

HMC3920LPA
Precision Mode
14-Bit A-to-D Converter
- 80 MSPS
- 4 Channels

You may choose from a variety of HMC LNAs specific to your application
You may choose from a variety of HMC PLL+VCO combinations specific to your application
Heterodyne Receiver with MIMO Featuring the HMCAD1520

HMC617LP3E [1] LNA, 55 - 1200 MHz
- 0.5 dB Noise Figure
- 24 dB Gain

HMC618LP3E [1] LNA, 1700 - 2200 MHz
- 0.75 dB Noise Figure
- 16 dB Gain

HMC624LP4E 6-Bit DATT
- DC - 6.0 GHz
- +55 dBm High IIP3

HMC248LP5E Band Pass Filter
- 200 ns Tuning Response

HMC589ST89E HBT Gain Block
- DC - 4 GHz
- +33 dBm OIP3

HMC680LP4E 5-Bit DVGA with Diff. Outputs
- 30 - 400 MHz
- 4 to +19 dB Gain
- +40 dBm OIP3

- Low Phase Noise, -110 dBc/Hz @ 10 kHz

- 180 fs RMS Jitter
- Low Phase Noise, -110 dBc/Hz @ 10 kHz

HMC830LP6GE [2] Wideband PLL + VCO
- 180 fs RMS Jitter
- Low Phase Noise, -110 dBc/Hz @ 10 kHz

HMC682LP6CE Dual Downconverters
1700 - 2200 MHz

HMC683LP6CE Dual Downconverters
700 - 1000 MHz

HMC817LP3E [1] Dual Channel LNA
- 55 - 1200 MHz
- 0.5 dB Noise Figure

HMC818LP3E [1] Dual Channel LNA
- 1700 - 2200 MHz
- 0.5 dB Noise Figure

HMC821LP3E [1] Dual Channel LNA
- 55 - 1200 MHz
- 0.5 dB Noise Figure

HMC822LP3E [1] Dual Channel LNA
- 1700 - 2200 MHz
- 0.5 dB Noise Figure

HMC830LP6GE [2] Wideband PLL + VCO
- 180 fs RMS Jitter
- Low Phase Noise, -110 dBc/Hz @ 10 kHz

[1] You may choose from a variety of HMC LNAs specific to your application
[2] You may choose from a variety of HMC PLL + VCO combinations specific to your application
A/D Converter Applications

Digital Oscilloscopes Featuring the HMCAD1510 & HMCAD1511

SNR with Digital Gain Compared with Traditional Ideal 8-Bit Converter

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<tr>
<th>Part Number</th>
<th>Function / Mode</th>
<th>Resolution (bits)</th>
<th>Sample Rate</th>
<th># of Channels</th>
<th>Power Dissipation [3][4]</th>
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<th>SFDR (dBc)</th>
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<td>2</td>
<td>710 mW</td>
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<td>125 MSPS</td>
<td>4</td>
<td>295 mW</td>
<td>49.7</td>
<td>60 / 69</td>
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[3] Supply Voltage (Vdd): +1.8 Vdc Analog Supply (AVdd) and +1.8 Vdc Digital Supply (DVdd)
[4] Output Supply Voltage (OVdd): +1.7 to +3.6 Vdc

[1] You may choose from a variety of HMC PLL+VCO combinations specific to your application

Analog-to-Digital Converter Solutions: adc@hittite.com
Visit us at www.hittite.com

JUNE 2011
Spectrum Analyzers Featuring the HMCAD1520 In Precision Mode

HMC860LP3E
High PSRR DC Regulator
- 3.35 V - 5.6 V

HMC880LP4E
5-Bit DVGA with Differential Outputs
- 30 - 400 MHz
- -4 to +19 dB Gain
- +40 dBm OIP3

HMC830LP6GE
Wideband PLL + VCO
- 180 fs RMS Jitter
- Low Phase Noise,
  -110 dBC/Hz @ 10 kHz

HMCAD1520
Quad Channel Precision Mode
14-Bit A-to-D Converter
- 80 / 105 MSPS
- Integrated Cross Point Switch
  (Analog Mux)

[1] You may choose from a variety of HMC PLL+VCO combinations specific to your application
Medical & Industrial Imaging (Ultrasound) Featuring the HMCAD1100/1101/1102

Part Number          Function / Mode | Resolution (bits) | Sample Rate | # of Channels | Power Dissipation | SNR (dBFS) | SFDR (dBc) |
------------------------------------------------|------------------|-------------|---------------|------------------|------------|------------|
HMCAD1102            Octal Channel 13 / 12 | 80 MSPS         | 8            | 59 mW / Channel | 70.1            | 77         |
HMCAD1101            Octal Channel 13 / 12 | 65 MSPS         | 8            | 51 mW / Channel | 72.2            | 82         |
HMCAD1100            Octal Channel 13 / 12 | 50 MSPS         | 8            | 41 mW / Channel | 72.2            | 82         |

[2] Supply Voltage (Vdd): +1.8 Vdc Analog Supply (AVdd) and +1.8 Vdc Digital Supply (DVdd)
[3] Output Supply Voltage (OVdd): +1.7 to +3.6 Vdc

[1] You may choose from a variety of HMC PLL+VCO combinations specific to your application
Hittite’s Ultra High Speed GSPS A/D Converters

In addition to the standard product, 3 to 1000 MSPS ADCs, Hittite offers ultra high bandwidth, non-interleaved flash and folding/interpolating-flash ADCs. These ADCs are capable of operating at sampling rates up to 26 GSPS and leverage Hittite’s industry-leading track-and-hold design patents and advanced packaging capabilities. Operating over the full -55 °C to +85 °C temperature range, these ADCs are fully capable of supporting sub-sampling applications into Ku-band, and are ideal for wideband receiver systems and test instrumentation applications. Hittite can develop advanced flash and folding/interpolating-flash architecture ADCs to meet your custom specifications.

Atmospheric LIDAR Featuring the HMC5448 8-Bit, 5 GSPS A/D Converter

Please Contact: adc@hittite.com for Information on the HMC5448 Ultra High Speed ADC

[1] You may choose from a variety of HMC PLL+VCO combinations specific to your application
Radio Astronomy Featuring The HMC5831 3-Bit, 26 GSPS A/D Converter

Please Contact: adc@hittite.com for Information on the HMC5831 Ultra High Speed ADC
## Sales Contact Information:

### Hittite Microwave Worldwide Sales Offices

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- **Hittite Microwave Corporation**
  - USA Corporate Headquarters
  - Phone: 978-250-3343
  - Fax: 978-250-3373
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