• 400 MS/S: maximum sampling rate of the ADS5474 ADC device
• 14bit Resolution: **11.2 Bits ENOB** (effective number of bits)
• 2 Channels (independent, 2 ADC chips)
• 700 MByte/s data rate
• DMA buffered acquisition
• 512 MB RAM FIFO used during PCI acquisition
• 1400 MB/s data transfer over PCIe
• 80dBc SFDR measured at 100 MHz and at 400Ms/s rate
• Computer running EDGES: PEGATRON IPMTB-TK / Intel i7 12 GB RAM
  Ubuntu 10.10 kernel 2.6.35
  Signatec installed on the PCIe x16 slot
• Power dissipation:
  Total power (PC + ADC Card ON at 400Mps) : 180 W
  Power consumed by PC with ADC on standby: 110 W
  (graphics card included, removing graphics card will reduce the power)
• FFTW c library used to do the FFT (done on the CPU)
**FEATURES**

- 2 Analog Channels at up to 400 MHz Sample Rate per Channel
- 14 Bits of Resolution
- Bandwidth from 100 KHz to 400 MHz
- 1 GB RAM (512 MB for Raw Data Capture / 512MB for FPGA Processing)
- 1400 MB/s Continuous Transfer Over PCI Express Bus (8 lanes)
- Xilinx Virtex-5 FPGAs
- Available Product Options:
  - 10/100/1000 Ethernet Port
  - Onboard Customer Programmable FPGA
  - Ample Support for User HW and SW Customized Processing Functionality
  - Xilinx Compatible JTAG Port Simplifies Development of User FPGA Processing

**Power Requirements**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>+12V</td>
<td>1.0 Amps max.</td>
</tr>
<tr>
<td>+3.3V</td>
<td>3.3 Amps max.</td>
</tr>
</tbody>
</table>

**Analog Inputs - Transformer**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Scale Input Voltage</td>
<td>1.1 Volts</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 ohms</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>500 kHz to 400 MHz</td>
</tr>
<tr>
<td>SNR (1-200 MHz)</td>
<td>68 dB</td>
</tr>
<tr>
<td>SFDR (@100 MHz)</td>
<td>80 dB</td>
</tr>
</tbody>
</table>

**Triggering**

The external trigger input can be used to synchronize the start of data acquisition with an external event. This is a digital input with TTL signal level. Triggering may be set to occur on either the positive or negative going edge of the signal.

Acquisition may also be set to occur based on the amplitude level of either of the two input signals exceeding a programmed trigger level. The triggering threshold is a digital value that is compared against the digitized signal. The detection is edge based with either positive or negative excursion being selectable.

**Operating Modes**

The PX14400A has 4 standard operating modes as follows:

1. Standby – the only passive mode with no data activity
2. RAM Acquisition – waveform data is captured into the onboard RAM
3. PCIe Buffered Acquisition – waveform data is passed to the PCIe bus, using 512 MBs of onboard RAM as a FIFO
4. PCIe Transfer – transfer data to the PCIe bus after a RAM Acquisition

**Ad55474**

14-Bit, 400-MSPS Analog-to-Digital Converter

**FEATURES**

- 400-MSPS Sample Rate
- 14-Bit Resolution, 11.2-Bits ENOB
- 1.4-GHz Input Bandwidth
- SFDR = 80 dBC at 230 MHz and 400 MSPS
- SNR = 69.8 dBFS at 230 MHz and 400 MSPS
- 2.2-Vpp Differential Input Voltage
- LVDS-Compatible Outputs
- Total Power Dissipation: 2.5 W
- Power Down Mode: 50 mW
- Offset Binary Output Format
- Output Data Transitions on the Rising and Falling Edges of a Half-Rate Output Clock
- On-Chip Analog Buffer, Track-and-Hold, and Reference Circuit

**APPLICATIONS**

- Test and Measurement Instrumentation
- Software-Defined Radio
- Data Acquisition
- Power Amplifier Linearization
- Communication Instrumentation
- Radar
RF input Connected to transformer then to ADC (Amplifier not connected)
Amplifier not connected to RF path
Transformer for VGA

CHANNEL ① CHANNEL ②

Signatec PX14400 (DEPLOYED WITH EDGES)
SN # 200887
output of VGA (Amplifier) NOT connected to ADC input for both channels.

output of MCL ADT4-6WT MiniCircuits Transformer connected to ADC input giving 100 MHz RF Bandwidth.