

TH80 - Dual Channel High-Speed Digitizer I/O Module with Ultra-Low Jitter Aperture Control

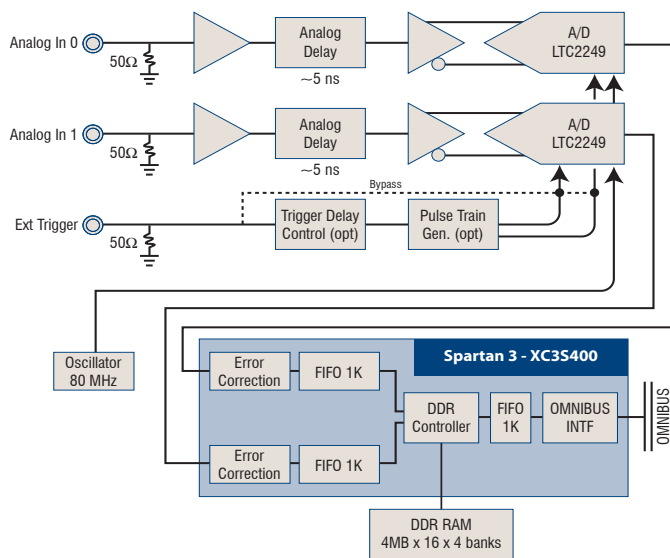
The TH80 is a dual channel high-speed digitizer of very high input bandwidth and up to 80MHz sampling speed. A 32MB on-board DDR RAM allows the capture of long burst at the full 80MHz sampling speed. Control registers are mapped on the 32-bit OMNIBUS interface and control is commanded via software on the host card.

The card can be used for fast signal digitizing between 1 and 80MSPS, acquiring gap-free burst length of up to total on-board RAM capacity. Data can then be transferred at the lower OMNIBUS rates to the mother board for post-processing and/or bus-mastering to host PC memory. The A/D conversion clock source is selected between an on-board oscillator (default 80MHz) or an external TTL clock. Error correction is performed in the logic with first order equation where gain and offset coefficients can be written via SW to on-board ROM

One exceptional feature is an optional trigger control mode that allows external, asynchronous triggering of the A/D converters, at up to 2MHz, with ultra low jitter. This allows end-user to operate the board in a mode similar to a track-and-hold function using novel, flexible digital control. The end-user provides a LVTTTL pulse indicating exactly when the conversion must take place, and the board controls the A/D aperture very precisely by synthesizing a 7 pulse train that forces the A/D pipeline to flush and output one sample per external trigger. The first pulse has less than 40 picoseconds jitter in respect to the external trigger pulse. This makes the TH80 a perfect digitizer for repetitive pulse measurement such as used in advanced RADAR systems or ultrasound imaging.

Software examples demonstrating module operation and communication are included in the toolset for the mother board. A full test and calibration report ships with every module. The on-board logic device is a 400 K gates Spartan-3 (XC3S400). For specific application, the logic can be made available for reconfiguration by end-user. Contact our Sales department for details.

- Interface** Compatible with all OMNIBUS host boards
Consumes one interrupt to host board
- Power Requirements** (estim.) 5VDCC @ 1.2A; +/-5V @ 100mA; -15V @ 10mA
- Physicals** OMNIBUS mezzanine card 2.00" x 4.60"
- A/D Converters** Two LTC2249
- Resolution** 14-bit
- Sampling Speed** 1 to 80 MSPS
- Analog Input** +/- 1V Range
Single Ended
DC coupled
50 ohm impedance
SMA connectors
- Input Bandwidth** 400MHz
- Pipeline Delay** 6 samples
- Ext Trigger** LVTTTL input, 50ohm, rising edge
2MHz max repeat rate using pulse train generator
SMA connector
- S/N Ratio** 60 dB
- THD** 0.01%
- SINAD** 60 dB
- Error Correction** Digital Gain & Offset correction
Coefficients adjustable via SW
- Interface to host board** Memory-mapped 32-bit
- Conversion clock sources** On-board crystal (80MHz default)
External Clock LVTTTL up to 20 MHz
(when bypassing pulse train generator)



Ordering Information

TH80 With Trigger and Pulse Train Generator	80130-0
TH80 Continuous Sampling, 80MHz Oscillator	80130-1

OMNIBUS Modules