

FEATURES

- 2U, 19" Compact form factor
- 4 analog channels with vertical sensitivity 1mV/div to 10V/div
- Up to 2GS/s sampling rate per channel or 4 GS/s sampling rate on 2 channels
- DC to 500MHz Analog Bandwidth, 800ps (typical) Rise time
- Long waveform memory 10Mpts per channel
- Remote controlled via Ethernet(VXI11) and USBTMC
- Compatibility with all Teledyne Lecroy software packages(WaveStudio, activeDSO and IVI driver)
- Superior integration of webserver inside the digitizer
- Synchronize multiple units (Trig in / Trig out)



Figure 1: GFT6084 and laptop with embedded web page

APPLICATIONS

- Test and measurement
- Automatic Test Equipment
- Diagnostics on High-Energy physics
- Production testing

DESCRIPTION

The GFT6084 is the ideal instrument for capturing, seeing and characterizing every detail of your high speed waveforms.

This compact digitizer can record four analog inputs at speeds of 2Giga Samples by second (or 4GS/s on only two analog inputs) with 8 bits resolution. The 10 Mega points per channel memory provides long capture at full sampling rate and makes this instrument a great tool for capturing low frequency and fast edges signals.

The GFT6084 is a low profile 19", 2U rack mountable instrument with USB and Ethernet interface. All the signal connectors are BNC model.

The GFT6084 is supplied with a built-in webserver provides remote access and control of the instrument. A windows software application (Wavestudio) which includes a front panel graphical interface control your digitizer from your desktop via Ethernet network. Wavestudio can be downloaded from Teledyne Lecroy Website.

The GFT6084 can be also local controlled with an embedded application software via Mouse and External monitor connected on the back of the unit.

The typical application of this compact 4 channels remotely controlled digitizer is to acquire waveforms in Automatic Test Equipment and production testing.



GFT6084

Quad 2 / 4GS Digitizer



SPECIFICATIONS

Parameter		Value	
Vertical system			
Rise time		< 800ps typical (for > 2.4mV/div)	
Bandwidth		DC to 500MHz	
Input Channels		4	
Bandwidth Limiters		20, 200MHz	
Input Impedance		1MΩ ± 2.0% 16pF 50Ω ± 2.0%	
Maximum Input Voltage	1MΩ 50Ω	400V max (DC + Peak AC ≤ 10 KHz) 5 VRMS or < ± 10 V peak	
Input Coupling		AC, DC, GND	
Channel-Channel Isolation (any two channels at equal vertical scale settings and 50Ω)	DC - 100 MHz > 100 MHz	40 dB 33 dB	
Vertical Resolution		8 bits	
DC Gain Accuracy		±(1.5%) Full Scale offset at 0 V > 5mV ±(2.5%) < 5mV	
Sensitivity	1MΩ 50Ω	1mV – 10V 1mV – 1V	
Offset Range	±2V ±5V ±20V ±50V ±200V ±400V	50Ω 1mV -19.8mV 20mV -100mV 102mV -198mV 200mV -1V	1MΩ 1mV -19.8mV 20mV -100mV 102mV -198mV 200mV -1V 1.02V -1.98V 2V -10V
Horizontal System			
Time/Division Range		1ns/div - 50s/div	
Clock Accuracy	> 1 ms interval	±10ppm	
Trigger and Interpolator Jitter (channel to channel)		35 ps rms (timebase < 50 ns/div) 150 ps rms (other time base)	
External trigger		< 90 ps rms	
Acquisition System			
Single-Shot Sample Rate/Ch	2Ch 4Ch	4GS/s 2GS/s	
Equivalent Sample Rate		50GS/s	
Memory		10Mpts/Ch	
Triggering System			
Modes		Normal, Auto, Single, Stop	
Sources		Ch 1 - Ch 4, EXT	
Coupling Mode		AC, DC, LF Rej, HF Rej	
Pre-trigger Delay		0 - 100% of memory size	
Post-trigger Delay		0 - 10,000 div	
Trigger Holdoff by Time, for Edge / windows Trigger		10ns up to 20s	
Internal Trigger Range		±4.1div	
Trigger Sensitivity (DC/AC /LFREJ)	DC - 10MHz 10MHz - 500MHz	0.8 div 1.5 div	
External Trigger Sensitivity (DC / AC / LFREJ)	DC to 10MHz 10MHz to 300MHz	Ext: 200mV 300mV	Ext/5: 1V 1.5V
External Trigger Input Range		Ext: ±0.61V, EXT/5: ±3.05V	



GFT6084

Quad 2 / 4GS Digitizer



Parameter		Value
Trigger Types		
Standard Triggers		Edge, Width, TV, Runt, Slew Rate, Interval, Dropout and Qualified
External Trigger Output		
Level		3.3V TTL
Power Requirements		
Voltage		100 - 240VAC, 50Hz - 60Hz $\pm 5\%$ / 3,3A
Environmental and Safety		
Temperature (Operating)		20°C to 40°C
Temperature (Non-Operating)		-30 to 70°C
Humidity (Operating)	30°C	90% RH
	50°C	50% RH
Humidity (Non-Operating)		95% RH
Altitude (Operating)	@ 25C	3,048 m max
Altitude (Non-Operating)		12,192 m
ROHS		ROHS2 directive 2011/65/EU
Physical Dimensions		
Dimensions (HWD)		2U, 19", 440 mm include handles
Weight		8 kg
Data interface		
USB		USB-2
USB-TMC		USB-2
Ethernet		10 – 100Mb/s
VGA		1024 x 600 resolution

FUNCTIONAL OVERVIEW

Block diagram

The digitizer includes analog front-ends with signal conditioning and A/D converters and a digital back-end for data flow control, triggering and host controller.

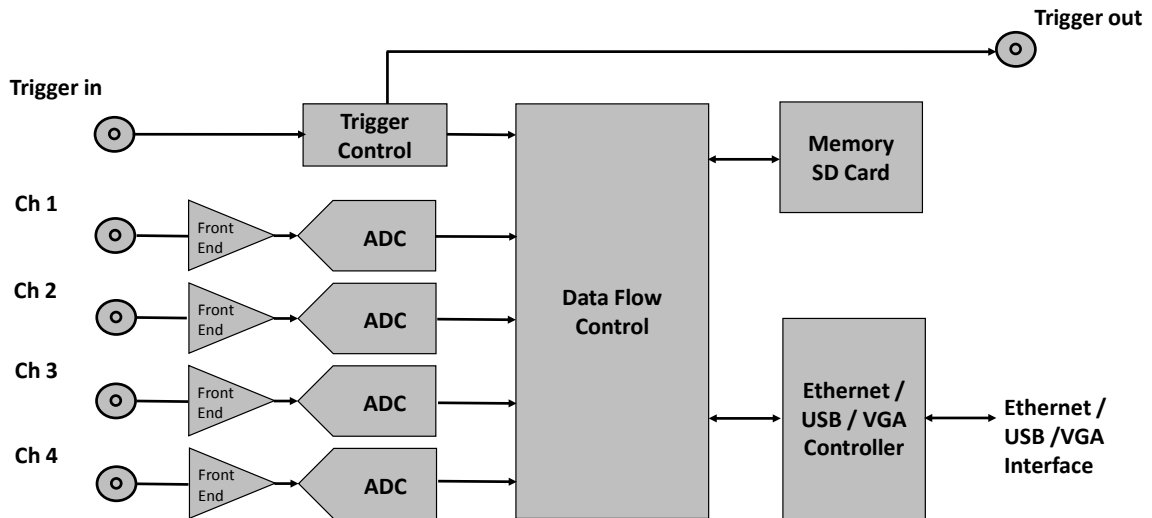


Figure 2: Block diagram in 4-channel mode

Analog front end

The analog front end contains over-voltage protection, variable gain setting, variable DC bias and noise suppression filter. The settings are user controlled via software.

The GFT6084 can operate in a 4 channel mode where each ADC is connected to one analog input channel (see figure 1). In the 2 channel mode, two ADCs operate on the same analog input in an interleaved mode. Switching between 2 and 4 channel mode is user controlled via software.

Trigger

There are several trigger types and modes for data recording:

- Edge, Width, TV, Runt, Slew Rate, Interval, Dropout, and Qualified
- Normal or Automatic
- Single shot or repetitive

The trigger source can be: External, Ch 1, Ch 2, Ch 3 or Ch 4

There is also a trigger output for triggering external equipment or other GFT6084.

Data interface

- USB-TMC or Ethernet

With the high speed USB - TMC (USB 2.0) or Ethernet interface the digitizer is easily connected to any computer for stand-alone operation

- USB

A mouse, keyboard or USB key can be connected to USB connector.

- VGA

A monitor can be connected directly to VGA output (1024 x 600 resolutions).

SOFTWARE TOOLS

There are three ways to control your digitizer.

- Two in remote mode from your desktop via Ethernet:
 - o The "quick way" to acquire and store via web page
 - o The "general way" to acquire and analyze via WaveStudio or Labview.
- One in local mode the "offline way" to acquire and analyze, via embedded software and External monitor and mouse.

WaveStudio from Lecroy

(<http://teledynelecroy.com/support/softwaredownload/wavestudio.aspx?smid=>)

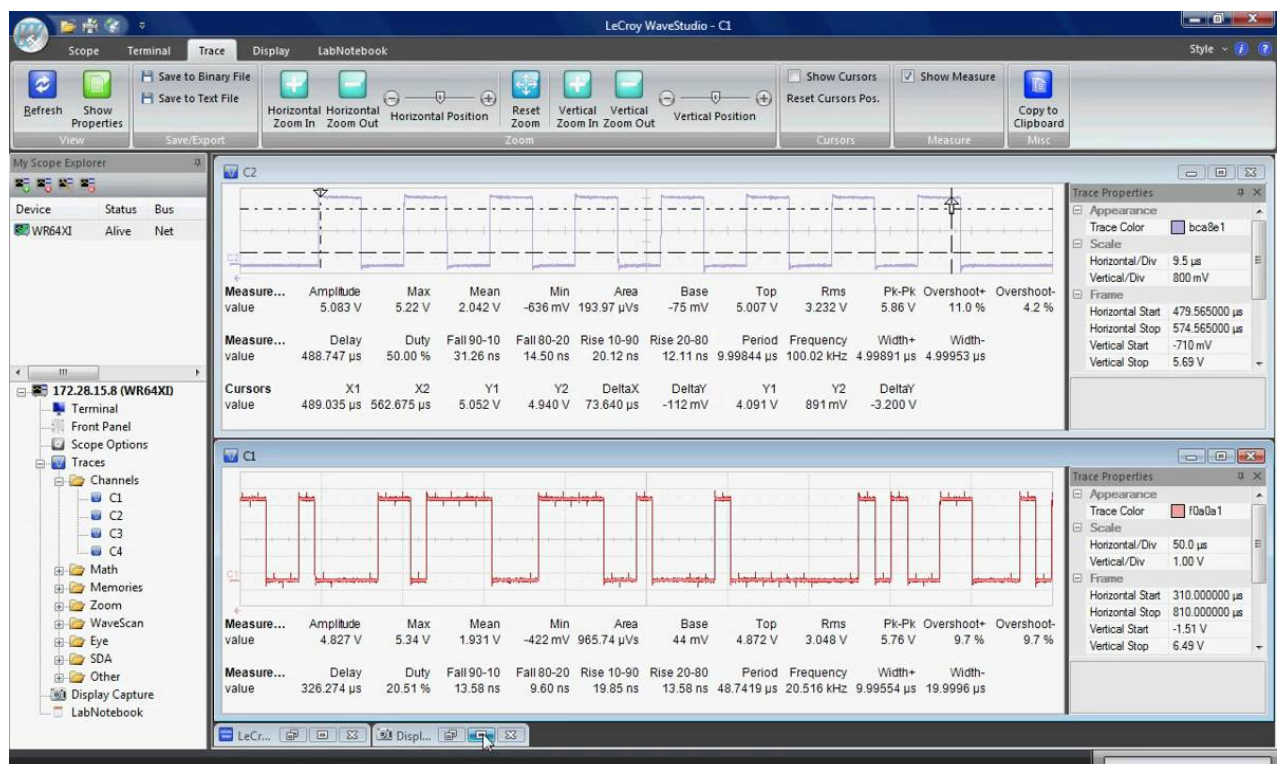


Figure 3: WaveStudio

WaveStudio is a fast and easy way to analyze acquired waveforms offline, or remotely control GFT6084 from your desktop.

Capture

Loading a waveform or screenshot into WaveStudio can be performed in one of two ways, either offline or connected to the GFT6084. When connected to the GFT6084, simply click on the display capture option to load a screen shot, or click a channel or channels to automatically load in the trace information.

View

WaveStudio presents the trace and screen shot views in tabs or windows. The tab view is ideal when many captures are stored. The window view can tile or cascade up to four widows of data to help correlate related waveforms and provide a time synchronized view.



GFT6084 Quad 2 / 4GS Digitizer



Analyze

WaveStudio provides x and y axis cursors for quick timing and amplitude measurements. For more precise values, use the built in many automatic measurements for accurate and quick results.

Document

WaveStudio makes it easy to document your work, whether the oscilloscope is next to you or is many miles away. Save LabNotebook traces for future analysis, or save the screenshot as a .bmp, .jpg, .png, or .tif. Traces can be saved in binary or text formats.

Labview driver

The Teledyne LeCroy VICP Passport is a plug-in passport for National Instruments' VISA (Windows version only). This passport is recommended for all users who wish to communicate with GFT6084 via TCP/IP using NI-VISA. This passport is required when using the LCXSDSO [IVI driver](#) to communicate with GFT6084 via TCP/IP.

Web pages

The "web page" from embedded Web server provides a simple method to configure settings for each channel (sensitivity, offset, coupling) and to control operation (time/div) and status of the instrument.

The user can open a web page to control the instrument via Internet Explorer, Firefox or Chrome.

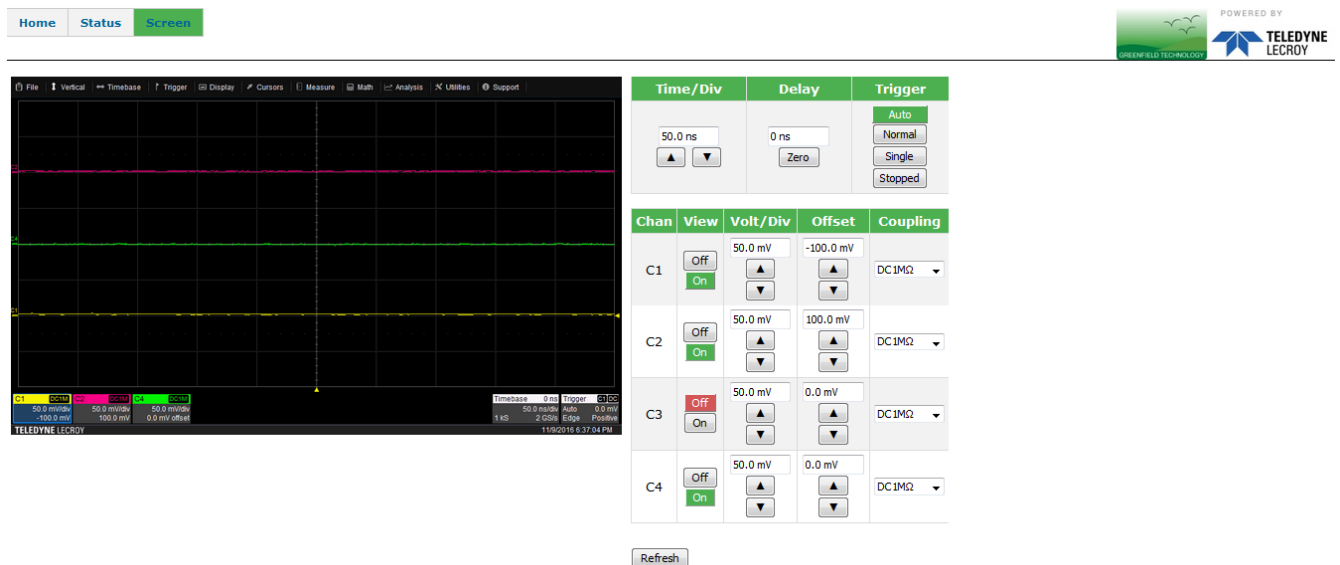


Figure 4: Web page

Local mode (offline)

In this mode the unit must be connected to external USB mouse and VGA monitor (two connectors on rear panel). This mode allows to Control, Capture, View, Measure and Analyze signals via the embedded software.

In local mode the GFT6084 offers the same capabilities that you find in a standard portable oscilloscope.

INCLOSURE

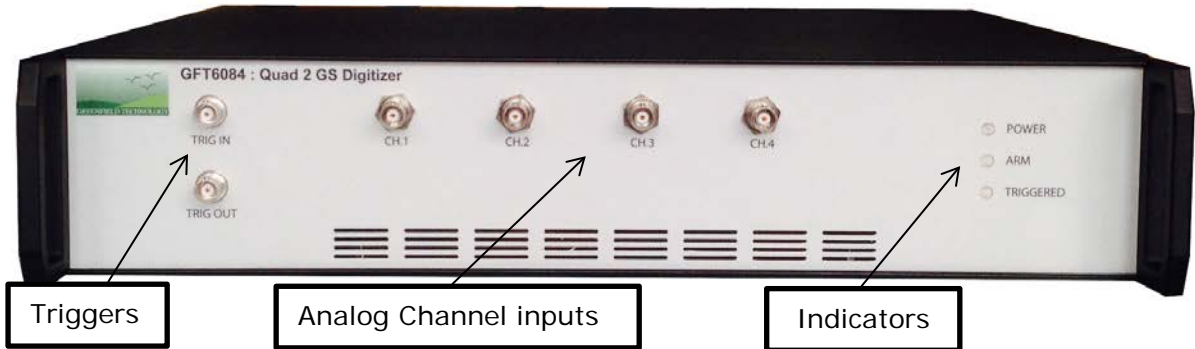


Figure 5: Front panel

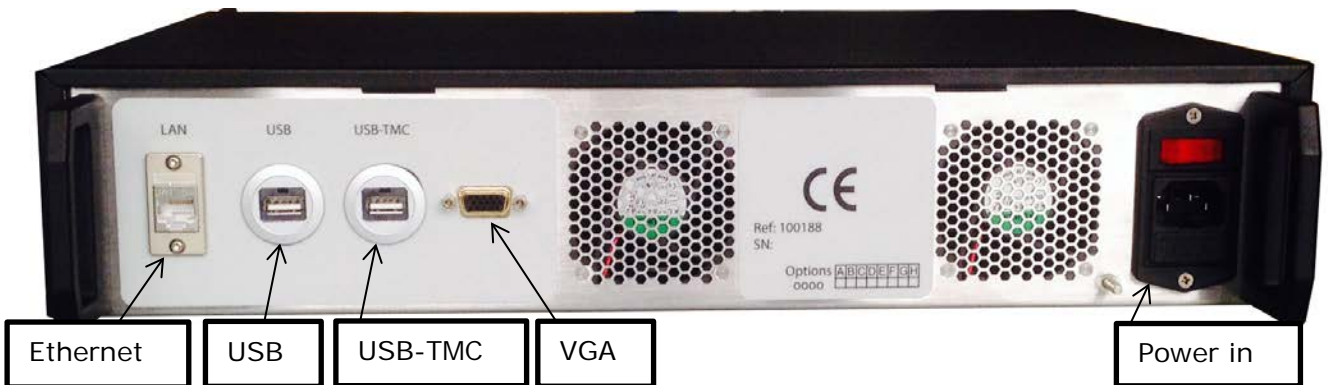


Figure 6: Rear panel

CONNECTORS, SWITCH, INDICATORS

Front Panel		Rear Panel	
TRIG IN	Trigger input: BNC connector	LAN	Ethernet connection: RJ45 connector
TRIG OUT	Trigger output: BNC connector	USB	USB connection: USB type A
CH1- CH4	Analog input: BNC connectors	USB-TMC	USB connection: USB type B
POWER	Indicator: Power ON	VGA	Monitor connection
ARM	Indicator: Digitizer armed	ON/OFF	Power ON/Off switch
TRIGGERED	Indicator: Digitizer triggered	PLUG	AC power plug (100 – 240V)

ORDERING INFORMATION

Ordering information	Reference
Quad 8-bit 2/4GS/s Digitizer	GFT6084