

# Agilent 93000 14-Bit 100 MHz Digitizer

## Product Overview

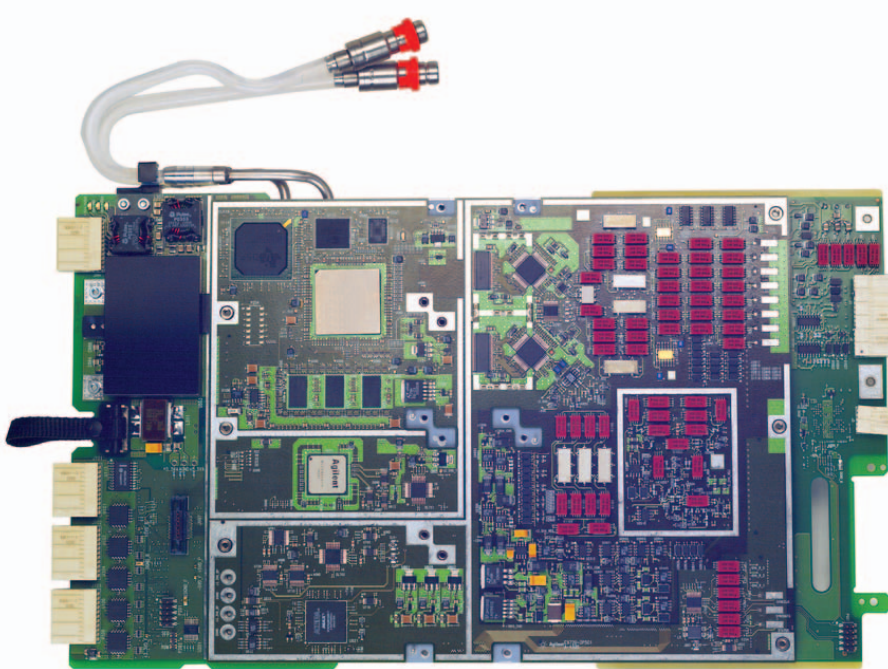
### Industry Challenges

Two trends drive the need for new test capabilities in the set top box (STB) market. The first is the demand for real-time, interactive, two-way communication services typified by new video conferencing services, new gaming capabilities and cable telephony services.

The demand for these real-time communication and entertainment services requires the CATV industry to increase up-link bandwidth and data rates.

Simultaneously, a parallel trend to increase high definition broadcasting services (HDTV) is emerging. STBs are becoming a standard component of home entertainment. The demand for higher capacity digital to analog converters (DACs) in a fixed bandwidth environment means more complex modulation and therefore greater speed in the STBs for coding and decoding.

These market-driven trends increase the need for better resolution and performance in testing the higher resolution DACs. Relative to DOCSIS 2.0, the increased upstream bandwidth and higher data rates (using more complex modulations) gives more spectral efficiency, but requires higher signal-to-noise ratios leading to DACs (and ADCs) with wider dynamic ranges. Testing such DACs requires digitizers with greater dynamic range.



**The Agilent 93000 14-Bit 100 MHz Digitizer provides true 14-Bit resolution for testing next generation set top boxes (STB), digital TVs (DTV) and Cable Modems.**



**Agilent Technologies**

## Product Summary

### Highest performance for DOCSIS 2.0 and HDTV

The new Agilent 14-Bit 100 MHz Digitizer is the first test solution to meet the emerging performance requirements driven by DOCSIS 2.0 and HDTV. Superior performance in both total harmonic distortion (THD) and spurious free dynamic range (SFDR) enables accurate testing of new high data rate communication applications such as STBs and Cable modems.

The Agilent 93000 is a leader in the industry in providing a low noise floor, which dramatically reduces the number of data averages required for optimal dynamic range. The superior performance capabilities of the 14-Bit 100 MHz Digitizer together with the low noise floor reduces test time and increases throughput. The new Agilent 100 MHz 14-Bit Digitizer provides high performance, high accuracy testing for up to 12-Bit DACs.

## Features and Benefits

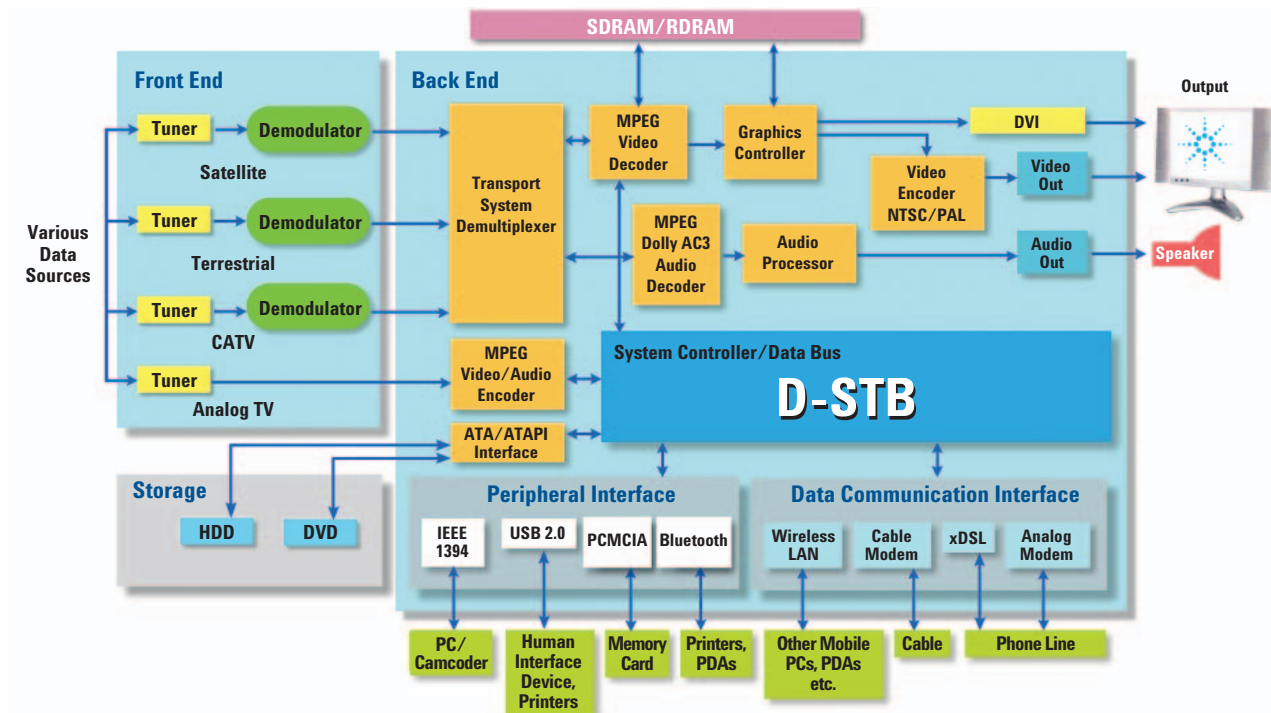
Feature	Benefit
True 14-Bit resolution	Wide dynamic range provides performance required for device characterization and manufacturing tests used for STB and Cable Modems
Independent DC and AC measurement paths	Optimal digitizer performance for specific applications
Low noise floor and repeatability	Less data averaging reduces test time
105 Msps sample rate	Capability to capture higher bandwidth signal
16 M waveform memory	Faster test time because all incoming ADC data is accumulated and read in one pass, which improves throughput

### Superior performance

Two independent paths are carefully designed to optimize digitizer performance from DC to 100 MHz, which produces the industry's best SFDR. The DC path's SFDR is optimized for the lower VHF side, while the AC path's SFDR is optimized for the higher VHF side. For example, for Cable-STB device testing, the DC path is designed

for high definition video DAC, while the AC path is designed for up-stream DAC testing.

Additionally, the digitizer sample rate extends to 105 Msps and has 16 Mbyte waveform memory for real-time data accumulation to capture wider bandwidth signals. The Agilent 14-Bit 100 MHz Digitizer is software and pogo-pin compatible with Agilent's existing 12-Bit VHF Digitizer.



## Key Specifications

Resolution/Sampling Rate	14-Bit / 30 Msps to 105 Msps
Input range	DC Path: $\pm 0.125V, 0.25V, 0.5V, 1V, 2V$ AC Path: $\pm 0.25V, 0.5V, 1V, 2V$
Input mode	Single-ended or Differential
Filters	DC Path: Through, 26MHz, 52MHz, 88MHz AC Path: Through, 52MHz, 88MHz
Input analog bandwidth (typ)	DC Path: DC – 100MHz AC Path: 0.25MHz – 100MHz
THD (typ)	DC Path: -85dBc @1MHz, -75dBc @10MHz AC Path: -80dBc @10MHz
SFDR (typ)	DC Path: -85dBc @1MHz, 100MHz BW AC Path: -80dBc @10MHz, 100MHz BW
SINAD (typ)	DC Path: 65dB @10MHz, $\pm 0.5V$ input, 100MHz BW AC Path: 65dB @10MHz, $\pm 0.5V$ input, 100MHz BW

### Reduced test time produces high throughput

The low noise floor, a characteristic of the Agilent 93000, speeds test time by reducing the amount of data averaging required. This, combined with the 93000 unique Cycle Steal Upload capability (parallel execution of measurement and data upload), contribute to test time reduction and faster throughput.

### Ordering Information

E9720A Agilent 93000  
14-Bit 100MHz Digitizer

### Additional Information

For more information about the Agilent 93000 SOC Series, please visit the following website:

[www.agilent.com/see/soc](http://www.agilent.com/see/soc)

### Contact Information

For more information on the new Agilent 93000 14-Bit 100 MHz Digitizer, please contact your local Agilent sales representative.

[www.agilent.com/see/contact us](http://www.agilent.com/see/contact us)

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