

TEKTRONIX

TDS520B

The Tektronix TDS520B is a high-performance 500 MHz, 2-channel digitizing oscilloscope designed for electronic design, manufacturing test, and research applications. It features a maximum single-channel real-time sample rate of 1 GS/s (500 MS/s per channel with both active), a standard record length of 50,000 points per channel, and an array of advanced triggering and analysis capabilities, all integrated with a built-in 3.5-inch floppy drive.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2) standard; RS-232, Centronics parallel, and VGA video output optional (Option 13)
Display	7-inch monochrome CRT
Warm-up Time	20 minutes

Physical

Power Supply	90 to 250 V RMS, 45 Hz to 440 Hz, power consumption < 300 W
Operating Temperature	0 to +50 °C (floppy drive: +10 to +50 °C) °C
Dimensions (W×H×D)	401 mm × 193 mm × 463 mm mm
Rackmount Option	Option 1R (19-inch rackmount kit)

Vertical System

Number of Channels	2 analog channels plus 2 auxiliary inputs
Analog Bandwidth (-3 dB)	500 MHz
Calculated Rise Time	700 ps
Input Impedance and Coupling	1 M Ω in parallel with 10 pF, or 50 Ω ; AC, DC, or GND coupling
Input Sensitivity Range (1 M Ω)	1 mV/div to 10 V/div
Input Sensitivity Range (50 Ω)	1 mV/div to 1 V/div
Vertical Resolution	8 bits (up to 12 bits with Hi-Res acquisition mode)
DC Gain Accuracy	±1.5%
Maximum Input Voltage (50 Ω)	5 V RMS
Channel-to-Channel Isolation	≥ 100:1 at 100 MHz
Hardware Bandwidth Limit Filters	20 MHz and 250 MHz
Position Range	±5 divisions
Offset Range (1 mV/div to 9.95 mV/div)	±1 V
Offset Range (10 mV/div to 99.5 mV/div)	±10 V
Offset Range (100 mV/div to 995 mV/div)	±100 V
Offset Range (1 V/div to 10 V/div)	±400 V
Channel-to-Channel Deskew Range	±25 ns

Horizontal System

Timebase Range	500 ps/div to 10 s/div
Timebase Accuracy	±25 ppm (over any interval ≥ 1 ms)
Pre-trigger Delay Range	0% to 100% of record

Acquisition System

Standard Record Length	50,000 points per channel
Maximum Real-time Sample Rate (1 Channel)	1 GS/s
Simultaneous Max. Sample Rate per Channel	500 MS/s
Equivalent-time Sample Rate	Up to 50 GS/s
Acquisition Modes	Sample, Peak Detect, Envelope, Average, High Resolution
Peak Detect Pulse Response Width	4 ns

Trigger System

Trigger Modes	Auto, Normal, Single Sequence
Trigger Coupling	AC, DC, Noise Reject, HF Reject, LF Reject
Trigger Holdoff Range	250 ns to 12 s
Edge Trigger Sensitivity (Internal)	0.35 div from DC to 50 MHz, 1 div at 500 MHz
Pulse Triggering Types	Glitch, Width, Runt, Slew Rate, Setup/Hold
Logic Triggering Types	Pattern, State
Video Trigger Formats	NTSC, PAL, SECAM, and custom formats

Waveform Measurements and Analysis

Automatic Measurements	Up to 25 measurements (including amplitude, frequency, rise/fall time, duty cycle, pulse width, overshoot)
Waveform Processing Math Operators	Add, subtract, multiply, divide, invert
Advanced Math Options	Integration, differentiation, FFT (with Option 2F)
FFT Window Types	Rectangular, Hanning, Hamming, Blackman-Harris (with Option 2F)
Limit Testing Options	Compares live waveforms to reference template boundaries

Display Characteristics

Display Resolution	640 × 480 pixels
Waveform Styles	Vectors, Dots, Infinite Persistence, Variable Persistence
Graticule Options	Full, Grid, Crosshair, Frame

Interfaces and Connectivity

Floppy Disk Drive	3.5-inch 1.44 MB DOS-formatted (standard)
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Power Specifications

Line Voltage Range	90 V to 250 V AC RMS
Line Frequency Range	45 Hz to 440 Hz

Environmental and Standards

Non-Operating Temperature Range	-22 °C to +60 °C
Operating Humidity Range	Up to 95% RH at or below +40 °C
Non-Operating Humidity Range	Up to 90% RH at or below +60 °C
Operating Altitude	Up to 4,570 m (15,000 feet)
Non-Operating Altitude	Up to 12,190 m (40,000 feet)
Recommended Calibration Interval	1 year

Physical Characteristics

Width (with handle)	401 mm
Height (with feet)	193 mm
Depth (with front cover)	463 mm

Acquisition

InstaVu Waveform Capture Rate	100,000 wfms/s
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Triggering

Internal Trigger Level Range	±12 divisions from center of screen
Internal Trigger Sensitivity (DC to 50 MHz)	0.35 div
Internal Trigger Sensitivity (50 MHz to 500 MHz)	1.0 div
Pulse Width Triggering Range	2 ns to 1 s
Minimum Glitch Width	2 ns
Setup Time Range	-100 ns to +100 ns
Hold Time Range	-1 ns to +100 ns

Display

CRT Phosphor	P31 (monochrome green)
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Power Supply

Power Consumption	300 W maximum
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Compliance & Safety

Safety Certifications	UL 3111-1, CSA 1010.1, EN 61010-1
EMC Compliance	FCC Part 15 Class A, EN 55011 Class A, EN 50082-1

Auxiliary Inputs & Outputs

Auxiliary Trigger Input Impedance	1 M Ω in parallel with 28 pF
Auxiliary Trigger Input Maximum Input Voltage	400 V (DC + peak AC)
Main Trigger Output	TTL-compatible (≥ 2.5 V open circuit, ≥ 1.0 V into 50 Ω)
Probe Compensator Output	0.5 V into ≥ 1 M Ω , 1 kHz (nominal)

Interfaces & Connectivity

Video Output Port	VGA-compatible, 15-pin D-sub connector
Probe Interface	TekProbe Level 2 (each channel)
Optional Interfaces (Option 13)	RS-232-C (DB-9 male) and Centronics parallel printer port
Hardcopy Output Formats	PostScript, ThinkJet, DeskJet, LaserJet, Epson, BMP, PCX, TIFF, DPU411/412

Storage

Non-Volatile Setup Storage	10 front-panel setups
Non-Volatile Waveform Storage	4 reference waveforms

General Features

Real-Time Clock	Battery-backed, logs time and date
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TECHNOLOGY

Digitizing

APPLICATIONS

Electronic Design and Troubleshooting

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.