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Data Sheet

August 15, 2026

DSPACE

dSPACE DS1104 Research and Development Controller Board

The DS1104 isaPCI rapid-control-prototyping board with an MPC8240 (PPC603e) 64-bit floating-point CPU at 250 MHz, 2 × 16 KB on-chip cache, 32 MB SDRAM, 8 MB flash, and a 33 MHz on-chip PCI bridge. OEM DS1104 specifications list four multiplexed 16-bit ADC channels plus four parallel 12-bit ADC channels (five channels can be sampled simultaneously), eight parallel 16-bit DAC channels plus or minus 10 V at plus or minus 5 mA with settling max 10 us to 1/2 LSB, DAC SNR greater than 80 dB, offset plus or minus 1 mV, gain error plus or minus 0.1 percent, 20-bit TTL digital I/O at plus or minus 5 mA, two incremental-encoder channels (TTL or RS422) with 24-bit counters to 1.65 MHz (6.6 MHz fourfold), UART to 115.2 k Bd RS232 / 1 MBd RS422/485, TMS320F240 20 MHz slave DSP with 10 PWM and 4 capture, 185 × 107 mm, 0 to 55 C, 18.5 W, plus 5 V 2.5 A / plus 12 V 0.3 A / minus 12 V 0.2 A, and a 33 MHz 32-bit 5 V PCI slot. University and industrial rapid control prototyping of drives, robotics, and power electronics from Simulink via Real-Time Interface. Serial Baud Rs422: up to 1 MBd RS422/RS485 Slave Dsp: TI TMS320F240 16-bit 20 MHz with 10 PWM and 4 capture Pci Slot: one 33 MHz / 32-bit 5 V PCI slot From dSPACE DS1104 Hardware Installation/Configuration and R&D Controller Kit specification tables. Confirm PCI versus later PCIe variant and installed connector panel (CP1104/CLP1104).



MODEL

dSPACE DS1104

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

DS1104

LISTING

<https://aumictechlabs.com/products/ds1104-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The dSPACE DS1104 is a real-time research and development controller board engineered for rapid control prototyping, algorithm development, and real-time simulation. Built around a 250 MHz MPC8240 processor with 64-bit floating-point capability, it combines a master processor with a dedicated 16-bit fixed-point DSP subsystem to deliver deterministic performance across drives, robotics, aerospace, and educational applications.

Technical Specifications

Processor Core Main processor: MPC8240 with PPC603e core, 250 MHz clock speed On-chip cache: 2 × 16 KB Global memory: 32 MB SDRAM, 8 MB Flash, 128 KB CMOS SRAM (DS1104PCIE variant) Slave DSP: Texas Instruments TMS320F240, 20 MHz clock rate DSP memory: 64 Kx16 external code memory, 28 Kx16 external data memory

I/O Architecture Analog inputs: One 16-bit ADC (4 multiplexed channels) + four 12-bit parallel ADCs Analog outputs: Eight 16-bit DAC channels (DACH1-DACH8), ±10 V range, ±5 mA output current, 10 µs max settling time Digital I/O: 20 configurable pins (I00-I019), TTL levels, ±5 mA output current Encoder interface: Two independent channels, 24-bit position counters, up to 1.65 MHz input frequency (6.6 MHz fourfold pulse count), 5 V/0.5 A sensor supply Serial UART: Single channel with FIFO, PLL-driven, RS232/RS422/RS485 compatible Timing & Control Four general-purpose timers with 80 ns resolution 32-bit software-reloadable sampling rate timer

Key Features PCI/PCle host interface for flexible integration 16-bit fixed-point DSP co-processor for dedicated signal processing Software-programmable encoder input (single-ended TTL or differential RS422) Individually configurable digital I/O direction per bit

Typical Applications Rapid control prototyping for motor drives and power electronics Real-time robotic control system development Aerospace control algorithm validation Educational research in control systems

Compatibility & Integration Connects via standard PCI slot or optional PCle interface to host development systems. RS232/RS422/RS485 serial support enables field communication and diagnostics.

DS1104 Characteristics / Specifications

PARAMETER	VALUE
Model	DS1104
Instrument Type	PCI R&D controller board
Cpu	MPC8240 PPC603e 64-bit floating point 250 MHz
On Chip Cache	2 × 16 KB
Global Memory	32 MB SDRAM
Flash Memory	8 MB
Adc Mux	4 multiplexed channels, 16-bit sample-and-hold
Adc Parallel	4 parallel channels, 12-bit sample-and-hold each
Adc Simultaneous	5 A/D channels (1×16-bit and 4×12-bit) can be sampled simultaneously
Adc Snr Mux	greater than 80 dB multiplexed channels
Adc Snr Parallel	greater than 65 dB parallel channels
Dac Channels	8 parallel 16-bit
Dac Range	minus 10 V to plus 10 V
Dac Current	minus 5 mA to plus 5 mA
Dac Settling	max 10 us full-scale to 1/2 LSB
Dac Snr	greater than 80 dB
Dac Offset Error	plus or minus 1 mV
Dac Gain Error	plus or minus 0.1 percent
Digital Io	20-bit parallel TTL, bit-selectable, plus or minus 5 mA
Encoder Channels	2, TTL or RS422, 24-bit, 1.65 MHz (6.6 MHz fourfold)
Serial Baud Rs2	up to 115.2 kBd
Serial Baud Rs4	up to 1 MBd RS422/RS485
Slave Dsp	TI TMS320F240 16-bit 20 MHz with 10 PWM and 4 capture
Board Size	185 × 107 mm (7.28 × 4.2 in)
Power Consumption	18.5 W

PARAMETER	VALUE
Pci Slot	one 33 MHz / 32-bit 5 V PCI slot
Operating Temperature	0 to 55 C
Manufacturer	dSPACE

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	0 to 55 C
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Manufacturer	dSPACE Notes From dSPACE DS1104 Hardware Installation/Configuration and R&D Controller Kit specification tables. Confirm PCI versus later PCIe variant and installed connector panel (CP1104/CLP1104).

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

specifications list four multiplexed 16-bit ADC channels plus four parallel 12-bit ADC channels (five channels can be sampled simultaneously), eight parallel 16-bit DAC channels plus or minus 10 V at plus or minus 5 mA with settling max 10 us to 1/2 LSB, DAC SNR greater than 80 dB, offset plus or minus 1 mV, gain error plus or minus 0.1 percent, 20-bit TTL digital I/O at plus or minus 5 mA, two incremental-encoder channels (TTL or RS422) with 24-bit counters to 1.65 MHz (6.6 MHz fourfold), UART to 115.2 kBd RS232 / 1 MBd RS422/485, TMS320F240 20 MHz slave DSP with 10 PWM and 4 capture, 185 x 107 mm, 0 to 55 C, 18.5 W, plus 5 V 2.5 A / plus 12 V 0.3 A / minus 12 V 0.2 A, and a 33 MHz 32-bit 5 V PCI slot.

Applications

University and industrial rapid control prototyping of drives, robotics, and power electronics from Simulink via Real-Time Interface.

Key Features

250 MHz PowerPC MPC8240

4 x 16-bit mux ADC plus 4 x 12-bit parallel ADC

8 x 16-bit DAC plus or minus 10 V

TMS320F240 slave DSP with PWM

PCI 5 V slot with RTI/Simulink workflow

Technical Specifications

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Instrument Type	PCI R&D controller board
Cpu	MPC8240 PPC603e 64-bit floating point 250 MHz
On Chip Cache	2 x 16 KB
Global Memory	32 MB SDRAM
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Adc Simultaneous	5 A/D channels (1x16-bit and 4x12-bit) can be sampled simultaneously
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PARAMETER	VALUE
Dac Gain Error	plus or minus 0.1 percent
Digital Io	20-bit parallel TTL, bit-selectable, plus or minus 5 mA
Encoder Channels	2, TTL or RS422, 24-bit, 1.65 MHz (6.6 MHz fourfold)
Serial Baud Rs232	up to 115.2 kBd
Serial Baud Rs422	up to 1 MBd RS422/RS485
Slave Dsp	TI TMS320F240 16-bit 20 MHz with 10 PWM and 4 capture
Board Size	185 x 107 mm (7.28 x 4.2 in)
Power Consumption	18.5 W
Pci Slot	one 33 MHz / 32-bit 5 V PCI slot
Operating Temperature	0 to 55 C
Manufacturer	dSPACE

Notes
From dSPACE DS1104 Hardware Installation/Configuration and R&D Controller Kit specification tables. Confirm PCI versus later PCIe variant and installed connector panel (CP1104/CLP1104).

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.