VPixx Technologies Inc.

VISION SCIENCE SOLUTIONS

DATAPixx™

Data acquisition and graphics toolbox for vision researchers

FEATURES

- DUAL-LINK DVI INPUT FROM LAPTOP OR PC
- DUAL SYNCHRONIZED VGA OUTPUTS WITH 16-BIT VIDEO DACs
- FAST 16-BIT DATA ADCs / DACs
- STEREO AUDIO INPUT/OUTPUTS
- 24 TTL TRIGGER INPUT/OUTPUTS
- ALL ANALOG AND DIGITAL INPUT / OUTPUTS FEATURE MICROSECOND SYNCHRONIZATION TO VIDEO REFRESH

OVERVIEW

The DATAPixx is a complete multi-function data and video processing USB peripheral for vision research. In addition to a dual-display video processor, the DATAPixx includes an array of peripherals which often need to be synchronized to video during an experiment, including a stereo audio stimulator, a button box port for precise reaction-time measurement, triggers for electrophysiology equipment, and even a complete analog I/O subsystem. Because we implemented the video controller and peripheral control on the same circuit board, you can now successfully synchronize all of your subject I/O to video refresh with microsecond precision.

The DATAPixx video subsystem converts a dual-link DVI digital video input from the host computer (or laptop), into VGA analog video outputs. The VGA outputs feature full 16-bit video DACs for ultimate precision in very low contrast stimuli. A second VGA output head can show the tester a mirror of the primary display; or alternatively, the left/right halves of a wide DVI input image can be split onto the two VGA displays, ensuring perfect frame synchronization between the left/right displays. To further support stereo applications, the DATAPixx also includes a standard VESA mini-DIN-3 connector for interfacing with stereo goggles.

SOFTWARE

Software support includes a low-level ANSI C API, PsychToolbox MATLAB / Octave libraries for Mac OS X, Windows and Linux, and HID support (PsychoPy, E-Prime, Presentation). The DATAPixx is also supported by the VPixx program.

VPixx

www.vpixx.com

DATAPixx SPECIFICATIONS

VIDEO PROCESSING

DVI input: Dual link on DVI-D connector
DVI input frequency: 25 MHz to 330 MHz
VGA output channels: 2 ch on db-15 connectors
VGA video DAC resolution: 16 bits per RGB gun
VGA maximum dot rate: 200 MHz (per VGA channel)
Maximum vertical refresh rate: 200 Hz

ANALOG TO DIGITAL CONVERTER

Number of channels: 16 (or 8 differential), on db-25
Converter resolution: 16 bits
Maximum sampling rate: 200 kSPS per channel
Frequency programming modes:
- samples per second, or per video frame
- nanoseconds per sample

Simultaneous sampling across all channels
Input range: ±10 V
Input impedance: $1.6*10^8\Omega$ // 3 pF
Absolute maximum input tolerance: ±12 V

DIGITAL TO ANALOG CONVERTER

Number of channels: 4 on db-25 connector
Converter resolution: 16 bits
Maximum sampling rate: 1 MSPS per channel
Frequency programming modes:
- samples per second, or per video frame
- nanoseconds per sample

Simultaneous output updates
Output ranges: ±10 V on 2 ch, ±5 V on 2 ch
Drive capability: ±25 mA

AUDIO CODEC

Audio line in, microphone in, speaker out, on 3.5 mm jacks
Stereo microphone input amplifier resistance: 20 KΩ
Microphone sampling rate: 96 kHz
Programmable microphone bias voltage range: 2.0 V to 3.1 V
Stereo DAC sampling rate: 96 kHz
Maximum output power into 8 Ω load: 500 mW

DIGITAL I/O

Number of digital inputs: 24 on db-25 connector
Input termination: >20 kΩ pullup to 3.3 V
Input tolerance: 5 V
Number of digital outputs: 24 on db-25 connector
Output drive stage: 5 V through 25 Ω series resistor
Maximum output current:
- source: 15 mA
- sink: 12 mA

GENERAL

USB 2.0 with 480 Mbit/s theorical maximum bandwidth
On-board memory: 128 MBytes for buffering I/O data
Operating temperature: 0°C to 70°C
Enclosure: steel, with 19'' rack-mount hardware available
Dimensions:
- 11.70''(W) x 5.58''(D) x 2.10''(H)
- 29.72 (W) x 14.17(D) x 5.33(H) cm

Power requirements: 5 VDC @ 4 A, 20 W max
(international AC adaptor included)

ORDERING INFORMATION

DESCRIPTION: DATAPixx
P/N: VPX-DPX-1001C

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