

# OEM Spectrometer: AS-5216 Microprocessor Board

The AS-5216 microprocessor board provides both flexibility and ease of integration. It features high-speed USB 2.0 communication and can be used in combination with the following detectors:

- Sony ILX554B and ILX511B
- Toshiba 1304
- Hamamatsu S11155/S7031 and G92xx series with/without TEC
- Sensors Unlimited 256 and 512

The board is equipped with an HD26 digital I/O connector with 13 programmable I/O port (3 digital in, 10 digital out), 2 analog out ports and 2 analog in ports. One digital out port is generally used to control the flash rate of

an AvaLight-XE pulsed Xenon light source, another digital out it used to control external TTL-shutter devices and a third is reserved for external control for flashing a laser source in LIBS applications. A digital in may be used for external hardware triggering.

A maximum of 127 AS-5216s can be coupled and synchronized through the USB 2.0 interface. This means easy and simultaneous sampling of 2-127 channels. The AS-5216 board can be synchronized with other AS-5216 boards to control the simultaneous data-sampling of multiple channels, all connected to USB2.0 high-speed interface. On-board signal processing allows data reduction to speed up scan transfer time.

Data reduction can be achieved by defining a start and stop pixel and On-Board Averaging.

This board is compatible with the extensive AvaSpec-DLL software development kit, enabling full control over the spectrometer in customer-designed software.



## Technical Data

<b>Microprocessor</b>	Coldfire® 5216, 32-bit, 64 MHz	
<b>Memory</b>	512 KB Flash Memory, 64KB RAM	
<b>A/D converter</b>	16-bit, 2 channels for video signal	
<b>Integration time</b>	2 $\mu$ s - 10 minutes (detector dependent)	
<b>Data Transfer speed</b>	1.8 ms/scan for Sony ILX554 2048 pixels, 2 MHz	
	1.8 ms /scan for Sony ILX511 2048 pixels, 2 MHz	
	1.1 ms/scan for TAOS 1401 2 MHz	
	3.7 ms /scan for Toshiba TCD1304, 1 MHz	
	2.09 ms/scan for Hamamatsu S11155, 1 MHz	
	5.22 ms/scan for Hamamatsu S7031, 250 kHz	
<b>USB interface</b>	2.0 high-speed, 480 Mbps	
	<b>RS-232 interface</b>	Baudrate 115200 bps, HD-26 female connector
	<b>Digital IO</b>	HD-26 connector, 2 Analog in, 2 Analog out, 3 Digital in, 12 Digital out, trigger, synchronization
<b>Power supply</b>	Default USB power, 350 mA 12 VDC, reverse polarity protection, 150 mA	
<b>Temperature range</b>	0- 55 °C	

## Ordering Information

- AS-5216**
- Microprocessor board 16-bit AD and USB2.0/RS-232 interface. Specify detector type, see below

## Detector Types

<b>- ILX</b>	for Sony ILX554B detectors (AvaSpec-ULS2048-USB2)
<b>-ILX511</b>	for Sony ILX511B detectors (AvaSpec-ULS2048L-USB2)
<b>- TOS3648</b>	for Toshiba 1304 detectors (AvaSpec-3648-USB2)
<b>- HAM2048XL</b>	for Hamamatsu S11155 detectors (AvaSpec-ULS2048XL-USB2), extra pcb incl.
<b>HAM1024x58</b>	for Hamamatsu S7031 detectors (AvaSpec-HS1024x58/122-USB2), extra pcb incl.
<b>- NIR256/512</b>	Hamamatsu G92xx series InGaAs NIR detectors (AvaSpec-NIR256/512-1.7)
<b>- NIR256/512TEC</b>	Hamamatsu G92xx series with TEC InGaAs NIR detectors (AvaSpec-NIR256/512-2.5-HSC-EVO), extra pcb incl.
<b>-NIRSU256/512</b>	Sensors Unlimited 256/512 InGaAs NIR detectors (AvaSpec-NIR256/512-1.7-HSC-EVO)