

# OEM Spectrometer: AS-7010 Microprocessor board



The AS-7010 is the all new electronic platform and the base for Avantes' future spectrometer models.

It is equipped with a powerful Xilinx Zynq 7010 microprocessor. It combines the software programmability of a Processor with the hardware programmability of an FPGA, resulting in unrivalled levels of system performance and flexibility. The generous 100 Mpixel memory enables onboard storage of spectra and custom programming. Equipped with 2 different AD converters optimal performance for each detector type is assured.

The As-7010 comes with the ability of 2 communication ports: High Speed USB3.0 and GigaEthernet.

Also on board is the HD26 digital I/O connector with 13 programmable digital I/O ports, 2 analog out ports and 2 analog in ports. The connector is compatible with the AS-5216 I/O connector.

## Technical Data

|                           |   |
|---------------------------|---|
| <b>Microprocessor</b>     | Xilinx Zynq 7010  |
| <b>Memory</b>             | 100 Mpixel  |
| <b>A/D converter</b>      | 16-bit, 2 channels for video signal / 16-bit, high end - low noise (detector dependent)                       |
| <b>Integration time</b>   | 2 $\mu$ s - 10 minutes (detector dependent)   |
| <b>USB interface</b>      | 3.0 high-speed, 5 Gbps  |
| <b>ETHERnet interface</b> | Giga Ethernet, 1 Gbps   |
| <b>Digital IO</b>         | HD-26 connector, 2 Analog in, 2 Analog out, 13 Digital bidirectional, trigger, synchronization, strobe, laser |
| <b>Power supply</b>       | Default USB3.0 power, 500 mA<br>12 VDC, reverse polarity protection, 300 mA                                   |
| <b>Temperature range</b>  | 0- 55 °C  |
| <b>Dimensions, weight</b> | 162,5 x 100 mm, 97 grams  |

## Ordering Information

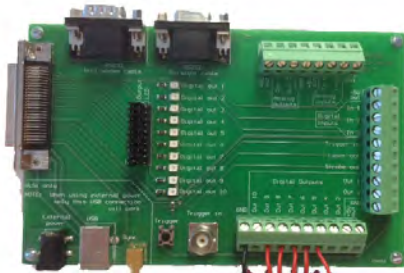
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|----------------|---|
| <b>AS-7010</b> | • Microprocessor board 16-bit AD and USB3.0/Ethernet interface.<br>Specify detector type, see below |
|----------------|---|

## Detector Types

|                     |   |
|---------------------|---|
| - <b>ILX511</b>     | for Sony ILX511B detectors (AvaSpec-ULS2048L-EVO)                           |
| - <b>HAM11639</b>   | for Hamamatsu S11639 CMOS detectors (AvaSpec-ULS2048CL-EVO)                 |
| - <b>HAM13496</b>   | for Hamamatsu S13496 CMOS detectors (AvaSpec-ULS4096CL-EVO)                 |
| - <b>HAM2048XL</b>  | for Hamamatsu S11155 detectors (AvaSpec-ULS/HS2048XL-EVO), extra pcb incl.  |
| - <b>HAM1024x58</b> | for Hamamatsu S7031 detectors (AvaSpec-HERO), extra pcb incl.               |
| - <b>HAM2048x64</b> | for Hamamatsu 11071 or 11850 (AvaSpec-ULS2048x64(TEC)-EVO), extra pcb incl. |
| - <b>NIR</b>        | for InGaAs NIR detectors (Specify model), extra pcb incl.                   |

## Developer kits for easy IO access

### Printed circuit board for AS5216 boards



Avantes Spectrometers feature great flexibility offering multiple Input / Output connections. These IO can be used with Avasoft 8 (Time Series) or with customized applications. The DEVKITs are intended to make life easier in the development-stage. Instead of fabricating or soldering a cable with the right connections now it is easy to connect using the screw terminals.

The AVS-DEVKIT-AS(C)5216 contains the PCB-IO-EXT-BES Printed Circuit Board. This board has several screw terminals for easy connectivity to the IO points, a BNC con-

connector for the input trigger as well a push button for manual control. All outputs have a LED indicating their status (selectable with jumpers). Furthermore RS232 connectors are provided. For the ASC version a power, USB and SYNC connector are on the PCB. The PCB-IO-EXT-BES will be connected to the AvaSpec-ULS or AvaSpec-ULSi IO Connector with an interface cable.

Since the AS7010 and the AS5216 electronic boards share the same IO connections, the AVS-DEVKIT-AS5216 can also be used in combination with the AS7010.

### Ordering Information

#### AVS-DEVKIT-AS5216

- Developer Kit consisting of: PCB-IO-EXT-BES Printed Circuit Board for connection to Avantes Spectrometers with AS5216 or AS7010 electronics boards, to easily control and connect signals to the IO connector. IC-IOEXT-DB26 connection cable to connect the board to DB26 connector.

#### Service-Mini-MKII-IO

- Service part: Set of mating connectors and wires for AvaSpec-MINI MKII IO connectors.(3 connectors/ 30 wires)  
This set consists:  
3 x mating connector Wurth WTB series 665 010 113 322 and  
30 x 150mm precrimped cable Wurth WTB series 665 010 130 115

The Developer Kit makes life easier in the development-stage. Connecting the screw terminals will enable you to get your application up and running in no-time!

## OEM Spectrometer: Enclosures

For OEM (Original Equipment Manufacturer) customers, Avantes offers a line of enclosures for their spectrometers. There are multiple enclosures available for different combinations of AvaBenchs and circuit boards.



### Ordering Information

- |                               |   |
|-------------------------------|---|
| <b>AVS-HOUSING</b>            | • Aluminum housing to fit AvaBench-75 and AS-5216 board.  |
| <b>AVS-HOUSING-EVO-ULS</b>    | • Aluminum housing to fit AvaBench-75 and AS-7010 board.  |
| <b>AVS-HOUSING-DUAL</b>       | • Dual-channel aluminum housing to fit two AvaBench-75 and AS-5216/7010 boards.                                 |
| <b>AVS-HOUSING-EVO-HSC</b>    | • Aluminum housing to fit AvaBench-100 and AS-7010 board.   |
| <b>AVS-HOUSING-IND</b>        | • Neutral black aluminum housing to fit AvaBench-75 and AS-5216/7010 board with mounting ears                   |
| <b>AVS-HOUSING-DUAL-IND</b>   | • Dual-channel neutral black aluminum housing to fit 2 AvaBench-75 and 2 AS-5216/7010 boards with mounting ears |
| <b>AVS-HOUSING-HSC-OEM</b>    | • Stainless steel housing to fit AvaBench-100 and AS-7010 board.  |
| <b>AVS-HOUSING-NIR1.7-OEM</b> | • Stainless steel housing to fit AvaBench-50 and AS-7010 board, with mounting ears.                             |