

## PDN – Product Discontinuance Notice

Product Affected	M2i.60xx Series M2i.61xx Series M2i.60xx-exp Series M2i.61xx-exp Series	Issue Date	1 <sup>st</sup> March 2019
Reasons for Discontinuance	The complete series are replaced by a newer and advanced product series. Some electronic parts used on the series are discontinued by the manufacturers.	Last Time Buy Date	There is no fixed last time buy date as the availability depends on the number or purchases issued. We estimate that the products will be available until 2020 or longer.

The M2p.65xx-x4 series is a direct replacement for the M2i.60xx-exp, M2i.61xx-exp, M2i.60xx and M2i.61xx series. It offers more versions with higher resolution and a faster bus interface while only being half of the board size. Besides the main differences there are many small improvements that allow easier interfacing with different application areas. Although the replacement series has an improved interface the API is still the same making a migration from existing software an easy step.

The full M2p.65x-4 series offers 20 different models ranging from 1 channel to 8 channels and 40 MS/s to 125 MS/s. A full list of products is found on Spectrum's website:

<https://spectrum-instrumentation.com/en/m2p65xx-x4-pci-express-pcie-x4>

## Product Series Replacement Table

Please note that the legacy PCI version M2i.60xx/M2i.61xx has no direct replacement. Instead the PCIe version needs to be used.

Discontinued Product					Replacement Product				
Name	Resolution	Channels	Speed	Output Level	Name	Resolution	Channels	Speed	Output Level
M2i.6011-exp	14 Bit	2	20 MS/s	±3 V into 50Ω/1MΩ	M2p.6531-x4	16 Bit	2	40 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6012-exp	14 Bit	4	20 MS/s	±3 V into 50Ω/1MΩ	M2p.6536-x4	16 Bit	4	40 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6021-exp	14 Bit	2	60 MS/s	±3 V into 50Ω/1MΩ	M2p.6561-x4	16 Bit	2	125 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6022-exp	14 Bit	4	60 MS/s	±3 V into 50Ω/1MΩ	M2p.6566-x4	16 Bit	4	125 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6030-exp	14 Bit	1	125 MS/s	±3 V into 50Ω/1MΩ	M2p.6560-x4	16 Bit	1	125 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6031-exp	14 Bit	2	125 MS/s	±3 V into 50Ω/1MΩ	M2p.6561-x4	16 Bit	2	125 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6033-exp	14 Bit	1 2	125 MS/s 60 MS/s	±3 V into 50Ω/1MΩ	M2p.6561-x4	16 Bit	2	125 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6034-exp	14 Bit	2 4	125 MS/s 60 MS/s	±3 V into 50Ω/1MΩ	M2p.6566-x4	16 Bit	4	125 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6110-exp	8 Bit	2	125 MS/s	±3 V into 50Ω/1MΩ	M2p.6561-x4	16 Bit	2	125 MS/s	±3 V into 50Ω/±6V into 1MΩ
M2i.6111-exp	8 Bit	4	125 MS/s	±3 V into 50Ω/1MΩ	M2p.6566-x4	16 Bit	4	125 MS/s	±3 V into 50Ω/±6V into 1MΩ

## Feature Comparison

Feature	M2i.xxxx-exp PCIe Card	M2i.xxxx PCI Card	M2p.xxxx-x4 PCIe Card	Remarks
Size	312 mm x 107 mm full length, full height		168 mm x 107 mm half length, full height	1/2 PCIe size fits into many more systems
Power Consumption	Max 28 Watts	Max 23 Watts	Max 18 Watts	
On-board memory	Standard 512 MByte, Option 2 GByte		Standard 1 GByte	Fast streaming speed makes memory option superfluous
Interface	PCIe x1 Gen1	PCI 32 Bit 66 MHz	PCIe x4 Gen1	Legacy PCI interface discontinued
Data Transfer Speed	160 MByte/s	200 MByte/s	700 MByte/s	4 times faster transfer speed allows more streaming applications
FIFO Mode Buffering	Some data always stays in FIFO buffers, needs force trigger to read last acquired segments.		Complete FIFO buffer readable at any time.	In FIFO mode M2p series allows to read out all data that has been acquired, no data remains in buffers, no need for force trigger.
SCAPP GPU Interface	Not available		Available	Data can be transferred directly to a CUDA-based GPU for fast data processing
I/O lines	1 x Trigger I/O 1 x Clock I/O		1 x Trigger-In 1 x Clock-In 1 x Multi-Purpose-Out 3 x Multi-Purpose-I/O	4 additional I/O lines as standard can be used for easy interfacing with other equipment. The 3 x Multi-Purpose I/O can also be used for synchronous digital-in (digitizer) or synchronous marker outputs (AWG)
Clock Modes	Internal External Reference		Internal External Reference	Direct external clock now allows variable clock between 1 MHz and max sampling rate, ideal for OCT applications

Feature	M2i.xxxx-exp PCIe Card	M2i.xxxx PCI Card	M2p.xxxx-x4 PCIe Card	Remarks
			Direct External Clock	
<b>External Clock Ranges</b>	User needs to know and program the clock range		Not needed	External clock now independent of clock range and channel config
<b>Clock Accuracy</b>	20 ppm		1 ppm	1 ppm was an option for M2i series and is now standard
<b>Clock Setup Granularity</b>	1% of range: 1 MHz for range. 10 MHz to 100 MHz		1 Hz	Clock setup has far improved
<b>External trigger</b>	3.3V LVTTTL		Level comparator ±5V	
<b>External trigger sources</b>	1 as standard + 2 as option		4 as standard	
<b>Trigger hold-off</b>	Not available		0 to 4 GSamples	New feature: programmable trigger hold-off for multi/gate/aba mode
<b>Timestamp Ref Clock</b>	Needed option BaseXIO		Standard	
<b>Trigger Source Mark</b>	Not available		Standard	Trigger source is automatically stored with timestamp and can be examined for each trigger event.
<b>Data Ordering</b>	Non linear for cards with two analog modules: ch0, ch2, ch1, ch3		Linear for all cards: ch0, ch1, ch2, ch3	Easier data access
<b>API Interface</b>	SPCM		SPCM	Same API Interface

## Option Replacement Table

Option	M2i Card	M2p Card	Remarks
<b>Synchronization Star-Hub Small</b>	M2i.xxxx-SH5	M2p.xxxx-SH6ex M2p.xxxx-SH6tm	Two mounting options allow to match the system restrictions. Ex = extension, card is extended to 3/4 PCIe length but still only 1 slot width Tm = top-mount, star-hub is mounted on top, card length stays at 1/2 PCIe length but occupies two slots
<b>Synchronization Star-Hub Large</b>	M2i.xxxx-SH16	M2p.xxxx-SH16ex M2p.xxxx-SH16tm	
<b>BaseXIO lines</b>	M2i.xxxx-bxio	3 to 4 lines standard	The standard card already contains one Multi-Purpose output and three Multi-Purpose I/O lines which replace the BaseXIO option. Please contact Spectrum if you are in need of more lines.

## Feature Comparison – Analog Module

Feature	60xx/61xx	65xx	Remarks
<b>Connectors (Card)</b> Analog Trigger Clock Multi-Purpose	SMB SMB SMB not available	SMB SMB SMB MMCX	A different mounting method of the 65xx SMB connectors matches more vendors SMB cable connectors
<b>Connectors (LXI/Ethernet)</b> Analog Trigger Clock Multi-Purpose	BNC BNC BNC BNC	BNC BNC BNC BNC	65xx series DigitizerNETBOX has 4 Multi-Purpose I/O in contrast to 60xx series that only has two
<b>Resolution</b>	14 Bit/8 Bit	16 Bit	
<b>Output Mode</b>	Single-ended	Single-ended	
<b>Sampling Speed</b>	20 MS/s to 125 MS/s	40 MS/s to 125 MS/s	
<b>Output Level into 50 Ω</b>	±3 V	±3 V	
<b>Output Level into 1 MΩ</b>	±3 V	±6 V	
<b>Output Resistance</b>	0 Ω	50 Ω	A dedicated 50 Ω output resistance makes the output shortcut proof
<b>Digital Outputs</b>	Option with up to 8 channels	4 channels as standard	Additional digital output option planned but not yet released.

## Obsolescence Policy

With release of the PDN the complete product series is no longer available for new projects. The complete stock is reserved for existing projects and for customers who are not able to change to the new series due to certification, hardware or software limitations.

In case that the only limitation that prevents you from ordering the new product series is the missing legacy PCI interface we strongly recommend switching to the newer PCI Express interface. The legacy PCI has been obsolete for years now and you will most likely face problems in the future when you need to replace the PC system.

More detailed information on the obsolescence policy is found online: <https://spectrum-instrumentation.com/en/obsolescence-policy>

If you have any questions or concerns about switching from the obsolete M2i.60xx/61xx series products to the replacement M2p.65xx series please contact Spectrum directly at [request@spec.de](mailto:request@spec.de)

Please find additional information on our website:

- Data sheet of M2p.65xx series:  
[https://spectrum-instrumentation.com/sites/default/files/download/m2p65\\_datasheet\\_english.pdf](https://spectrum-instrumentation.com/sites/default/files/download/m2p65_datasheet_english.pdf)

- Manual of M2p.65xx series:  
[https://spectrum-instrumentation.com/sites/default/files/download/m2p\\_65xx\\_manual\\_english.pdf](https://spectrum-instrumentation.com/sites/default/files/download/m2p_65xx_manual_english.pdf)
- Manual of M2i.60xx series:  
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