

PDN – Product Discontinuance Notice

Product Affected	M2i.20xx Series M2i.20xx-exp Series	Issue Date	1 st September 2019
Reasons for Discontinuance	The complete series are replaced by 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 M4i.22xx series are replacements for the M2i.20xx-exp and the M2i.20xx series with better specifications. It offers many more versions with higher bandwidth and a faster sampling rate while having a shorter 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 M4i.22xx-8 series offers 9 different models ranging from 1 channel to 4 channels and 1.25 GS/s to 5 GS/s. A full list of products is found on Spectrum's website: <https://spectrum-instrumentation.com/en/m4i22xx-x8-pci-express-pcie-x8>

Product Series Replacement Table

Please note that the legacy PCI version M2i.20xx has no direct replacement. Instead the PCIe version needs to be used.

Discontinued Product						Replacement Product(s)					
Name	Resolution	Channels		Speed	Bandwidth	Name	Resolution	Channels		Speed	Bandwidth
		SE	Diff					SE	Diff		
M2i.2020-exp	8 Bit	2	-	50 MS/s	25 MHz	M4i.2211-x8 M2p.5941-x4	8 Bit 16 Bit	2 2	- 2	1.25 GS/s 80 MS/s	500 MHz 40 MHz
M2i.2021-exp	8 Bit	4	-	50 MS/s	25 MHz	M4i.2212-x8 M2p.5946-x4	8 Bit 16 Bit	4 4	- 4	1.25 GS/s 80 MS/s	500 MHz 40 MHz
M2i.2030-exp	8 Bit	1 2	-	200 MS/s 100 MS/s	90 MHz	M4i.2211-x8 M2p.5961-x4	8 Bit 16 Bit	2 2	- 2	1.25 GS/s 125 MS/s	500 MHz 60 MHz
M2i.2131-exp	8 Bit	2 4	-	200 MS/s 100 MS/s	90 MHz	M4i.2212-x8 M2p.5966-x4	8 Bit 16 Bit	4 4	- 4	1.25 GS/s 125 MS/s	500 MHz 60 MHz

SE = Single-Ended Inputs
Diff = Differential Inputs

Feature Comparison

Feature	M2i.xxxx-exp PCIe Card	M2i.xxxx PCI Card	M4i.xxxx-x8 PCIe Card	Remarks
Size	312 mm x 107 mm full length, full height		241 mm x 107 mm 3/4 length, full height	3/4 PCIe size fits into many more systems
Power Consumption	Max 32 Watts	Max 25 Watts	Max 27 Watts	Comparing 2 channel versions
On-board memory	Standard 512 MByte, Option 2 GByte		Standard 4 GByte	4 GByte as standard
Interface	PCIe x1 Gen1	PCI 32 Bit 66 MHz	PCIe x8 Gen2	Legacy PCI interface discontinued
Data Transfer Speed	160 MByte/s	200 MByte/s	3.4 GByte/s	20 times faster transfer speed allows more streaming applications
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 In 1 x Clock In 1 x Clock Out		1 x Trigger-In 1 x Trigger-Out 1 x Clock-In 1 x Clock-Out 3 x Multi-Purpose-I/O	The 3 x Multi-Purpose I/O of M4i.xxxx series can also be used for synchronous digital-in (digitizer) or synchronous marker outputs (AWG)
Clock Modes	Internal External Reference		Internal External Reference	
Clock Accuracy	20 ppm		20 ppm	
Clock Setup Granularity	1% of range: 1 MHz for range. 10 MHz to 100 MHz		22xx: fixed divider	
External trigger	LVTTTL input		Window comp. ±5V	
External trigger sources	1		4 as standard	
Trigger hold-off	Not available		Not available	
Timestamp Ref Clock	Needed option BaseXIO		Standard	
Trigger Source Mark	Not available		Standard	Trigger source is automatically stored with timestamp and can be examined for each trigger event.
API Interface	SPCM		SPCM	Same API Interface

Option Replacement Table

Option	M2i Card	M4i Card	Remarks
Synchronization Star-Hub Small	M2i.xxxx-SH5	M4i.xxxx-SH8ex M4i.xxxx-SH8tm	Two mounting options allow to match the system restrictions. Ex = extension, card is extended to full PCIe length but still only 1 slot width Tm = top-mount, star-hub is mounted on top, card length stays at 3/4 PCIe length but occupies two slots
Synchronization Star-Hub Large	M2i.xxxx-SH16		
BaseXIO lines	M2i.xxxx-bxio	3 lines standard	The standard card already contains three Multi-Purpose I/O lines which replace the BaseXIO option.

Feature Comparison – Analog Module

Feature	20xx	22xx	Remarks
Connectors Analog Trigger Clock Multi-Purpose	SMB SMB SMB n.a.	SMA SMA SMA MMCX	The SMA connection is a better fit for higher signal frequencies.
Resolution	8 Bit	8 Bit	
Input Mode	Single-ended	Single-ended	
Sampling Speed	50 MS/s to 200 MS/s	1.25 GS/s to 5 GS/s	The M4i.22xx offers much faster versions
Bandwidth	25 MHz to 90 MHz	500 MHz to 1.5 GHz	
Input Ranges	±50 mV to ±10 V	±200 mV to ±2.5 V ±40 mV to ±500 mV	The M4i.22xx series is available with low voltage inputs as an option
Input Offset	±400%	±200%	
Input Impedance	50 Ohm/1 MOhm	50 Ohm	The fixed 50 ohm input offers best signal quality. High impedance inputs are available on the M4i.4450-x8 with 14 bit 500 MS/s
Re-Arming Time	64 samples	80 samples (1.25 GS/s)	+ programmed pre-trigger + programmed hold-off
Digital Inputs	n.a.	3 channels as standard	Digital inputs are synchronously sampled with the analog inputs sampled and stored in the memory.
Special Modes	n.a.	Block Average (option) Block Statistics (option)	Additional acquisitions modes that are available as firmware feature

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 M3i.20xx series products to the replacement M4i.22xx series and M4i.44xx series please contact Spectrum directly at request@spec.de

Please find additional information on our website:

- Data sheet of M4i.22xx series:
https://spectrum-instrumentation.com/sites/default/files/download/m4i22_datasheet_english.pdf
- Manual of M4i.22xx series:
https://spectrum-instrumentation.com/sites/default/files/download/m4i_m4x_22xx_manual_english.pdf
- Data sheet of M2p.59xx series:
https://spectrum-instrumentation.com/sites/default/files/download/m2p59_datasheet_english.pdf
- Manual of M2p.59xx series:
https://spectrum-instrumentation.com/sites/default/files/download/m2p_59xx_manual_english.pdf
- Manual of M2i.20xx series:
https://spectrum-instrumentation.com/sites/default/files/download/m2i20_manual_english.pdf