

Why Move from the M8020A to the M8040A?

Evolve with the Standards

As computing and data center standards evolve, test equipment need updating to support the newer generations and increased speeds of those standards. Transitioning from the Keysight M8020A J-BERT to the **M8040A high-performance BERT** enables verification, characterization, and compliance testing of the latest generation of standards.

M8040A Key Benefits

- The M8040A modules can generate patterns up to 64 Gbaud NRZ / PAM4 and analyze errors up to 64 Gbaud NRZ / 58 Gbaud PAM4.
- Use the same two hardware modules for both NRZ (PCIe, USB, TBT) and PAM4 (200 GbE, 400 GbE) encoding. Control them using the same Keysight M8070B user interface and remote commands.
- With the M8040A, you can create an entire industry-leading ecosystem from Keysight: M8040A BERT hardware + world-class UXR Series oscilloscopes + automation software + ISI + interference source + accessories + a plethora of other instruments.



M8040A Trade-in Key Benefits



Save up to 25%
on a new M8040A



Migrate to the latest
technology — sooner



Enhance your
competitive edge

www.keysight.com/find/trade

Learn more at: www.keysight.com

Find us at www.keysight.com

This information is subject to change without notice. © Keysight Technologies, 2020, Published in USA, June 3, 2020, 3120-1353.EN

Specification Comparisons

Key Specifications	M8020A			M8040A	
	M8041A	M8051A	M8062A	M8045A	M8046A
Module type	PG, ED	PG, ED (channel extender)	PG, ED	PG	ED
Data format	NRZ			NRZ, PAM3, and PAM4	NRZ and PAM4
Data / symbol rate	0.256 to 16 Gbit/s		0.512 to 32 Gbit/s	2 Gbaud to 64 Gbaud	NRZ: 5 Gbaud to 64 Gbaud PAM4: 5 Gbaud to 58 Gbaud
Integrated FEC encoding	No			Yes	N/A
Integrated equalization	Yes: CTLE			N/A	Yes: FFE
Interactive link training / SKPOS filtering	Link training: PCIe, USB; no SKPOS filtering		No	Link training and SKPOS filtering: PCIe, USB, SATA, SAS, CCIX	
Clock recovery	Up to 16.2 Gbit/s		Up to 32 Gbit/s	N/A	Up to 53 Gbaud
Connector type	3.5 mm			1.85 mm (clk & trig out — 3.5 mm)	2.4 mm
Size	3-slot	2-slot	2-slot	3-slot	1-slot

Key Applications

Standard	Max Speed	M8020A		M8040A
		M8041A / 51A	M8041A + M8062A	M8045A / 46A
Ethernet	10GbE	10 Gbit/s NRZ	★★★★★	☆☆☆☆☆
	40GbE	40 Gbit/s NRZ	☆☆☆☆☆	★★★★★
	100GbE	4*25 Gbit/s NRZ	☆☆☆☆☆	★★★★★
	200GbE	26.56 Gbaud PAM4	☆☆☆☆☆	☆☆☆☆☆
	400GbE	26.56 & 53 Gbaud PAM4	☆☆☆☆☆	☆☆☆☆☆
	800GbE	56 Gbaud PAM4	☆☆☆☆☆	☆☆☆☆☆
PCIe	2.0	5 GT/s	★★★★★	☆☆☆☆☆
	3.0	8 GT/s	★★★★★	☆☆☆☆☆
	4.0	16 GT/s	★★★★★	☆☆☆☆☆
	5.0	32 GT/s	☆☆☆☆☆	☆☆☆☆☆
OIF CEI	28G	28 Gbit/s	☆☆☆☆☆	★★★★★
	56G	28 Gbaud PAM4	☆☆☆☆☆	☆☆☆☆☆
	112G	58 Gbaud PAM4	☆☆☆☆☆	☆☆☆☆☆
SATA	I	1.5 Gbit/s	★★★★★	☆☆☆☆☆
	II	3 Gbit/s	★★★★★	☆☆☆☆☆
	III	6 Gbit/s	☆☆☆☆☆	☆☆☆☆☆

Standard	Max Speed	M8020A		M8040A
		M8041A / 51A	M8041A + M8062A	M8045A / 46A
USB	3.2	20 Gbit/s	★★★★★ ³	☆☆☆☆☆
	4	40 Gbit/s	☆☆☆☆☆	★★★★★
Thunderbolt	3/4	20.6 Gbit/s	☆☆☆☆☆	★★★★★
SAS	1	3 Gbit/s	★★★★★	☆☆☆☆☆
	2	6 Gbit/s	☆☆☆☆☆	☆☆☆☆☆
	3	12 Gbit/s	☆☆☆☆☆	☆☆☆☆☆
	4	24 Gbit/s	☆☆☆☆☆	☆☆☆☆☆
CCIX	20 Gb/s	20 Gbit/s	☆☆☆☆☆	☆☆☆☆☆
	25 Gb/s	25 Gbit/s	☆☆☆☆☆	☆☆☆☆☆
PON	10G	10 Gbit/s	★★★★★	☆☆☆☆☆
	25G	25 Gbit/s	☆☆☆☆☆	☆☆☆☆☆
Fibre Channel	32GFC	28 Gbaud	☆☆☆☆☆	★★★★★
	64GFC	28.9 Gbaud	☆☆☆☆☆	☆☆☆☆☆
	128GFC	58 Gbaud	☆☆☆☆☆	☆☆☆☆☆
MIPI®	M-PHY® G5	11.6 Gbit/s	★★★★★	★★★★★
DisplayPort	1.3/1.4	32 Gbit/s	☆☆☆☆☆	★★★★★

1. This spec is not yet finalized, but the M8040A meets some criteria thus far.
 2. Resolution of current gaps will occur by June 2020.
 3. Resolution of current gaps will occur by fall 2020.

Learn more at: www.keysight.com

Find us at www.keysight.com

This information is subject to change without notice. © Keysight Technologies, 2020, Published in USA, June 3, 2020, 3120-1353.EN

