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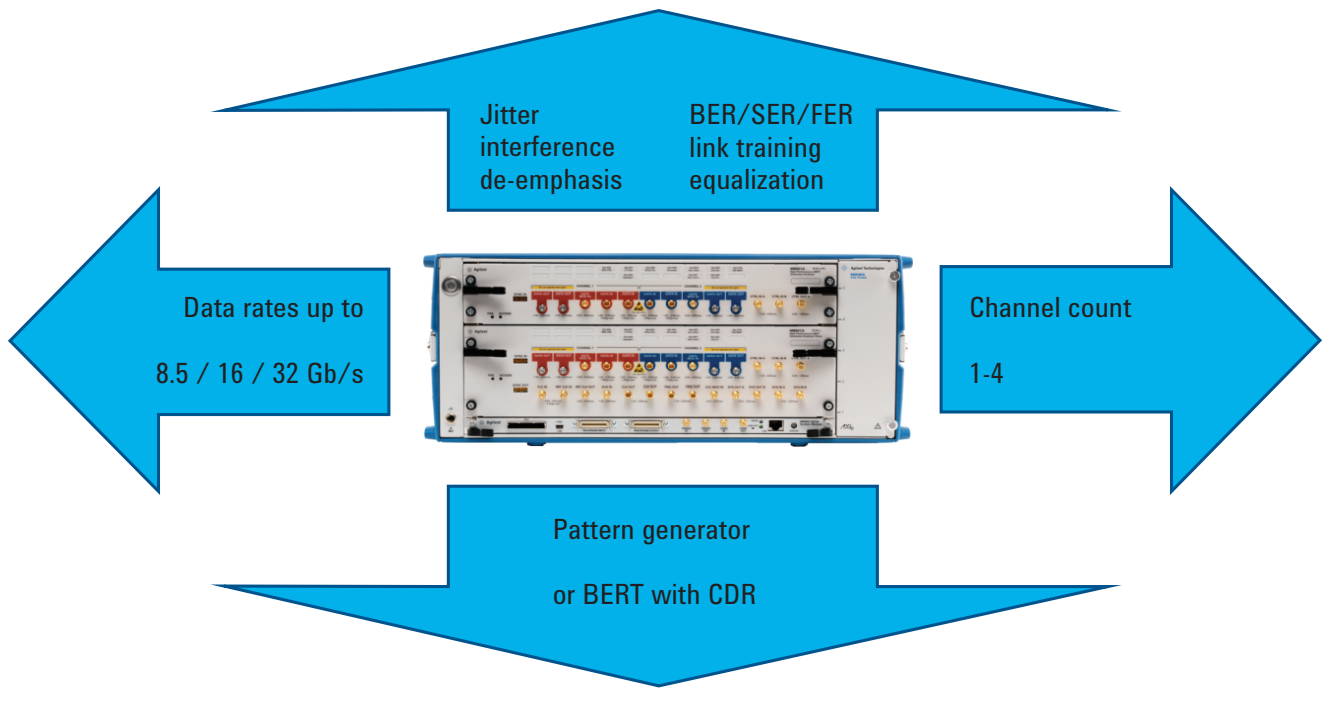
J-BERT M8020A  
High-Performance BERT

*Master Your Next Designs*



## Configuration Guide 1.0

The following steps will guide you through configuring a turn key  
J-BERT M8020A High-Performance BERT



# Available configurations

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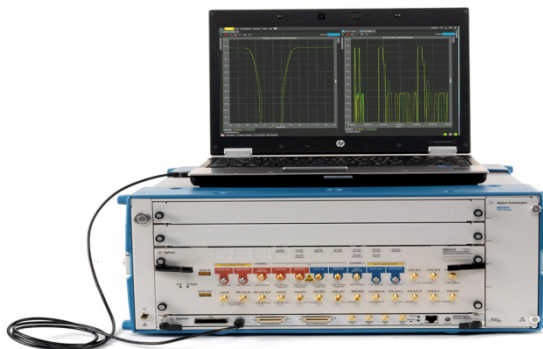
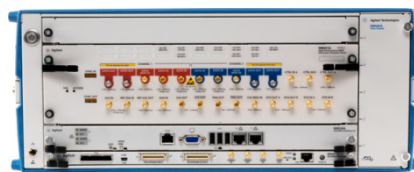
## M8020A 16 Gb/s BERT

1 – 2 channels

- With embedded controller M9536A
- With external PC

Hardware selection required for this configuration:

- BERT module (refer to steps 1 and 2 below)
- 5-slot AXIe chassis required (refer to step 8 below)



## M8020A 16 Gb/s BERT

Up to 4 channels

External controller, can be either laptop or desktop

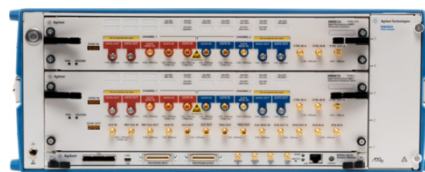
- USB (any external controller will work)
- PCIe for highest throughput

(please see the list of supported PCs in the document Tested Computer List

<http://cp.literature.agilent.com/litweb/pdf/5990-7632EN.pdf>,

Hardware selection required for this configuration:

- BERT module (refer to steps 1 and 2 below)
- 2nd BERT module (refer to step 3 below)
- 5-slot AXIe chassis required (refer to step 8 below)



## M8020A 32 Gb/s BERT

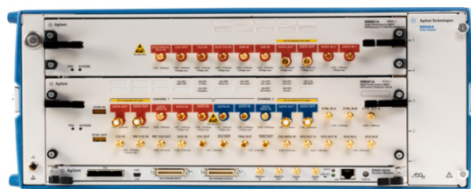
1 channel

With M8061A mux and N4877A CDR /Demux

Two 32 Gb/s channels possible with 2nd chassis.

Hardware selection required for this configuration:

- BERT module (refer to steps 1 and 2 below)
- Multiplexer (refer to step 5 below)
- 5-slot AXIe chassis required (refer to step 8 below)




The J-BERT M8020A high-performance BERT is scalable containing:

- BERT modules M8041A, M8051A and M8061A
- Software
- Infrastructure such as chassis and embedded controller
- And accessories.

The following steps will guide your through configuring a turnkey J-BERT M8020A high-performance BERT.

**Step 1 Choose the 1st BERT module – basic selection**



**M8041A 8.5/16 Gb/s Generator Analyzer Clock, 3-slot AXIe module**  
**1 selection out of the following 4 options is a must**

Option-No	Description
M8041A-C08	BERT one channel, data rate up to 8.5 Gb/s
M8041A-C16	BERT one channel, data rate up to 16 Gb/s
M8041A-G08	Pattern generator one channel, data rate up to 8.5 Gb/s
M8041A-G16	Pattern generator one channel, data rate up to 16 Gb/s

*Note: If pattern generator only option G08 or G16 is ordered: It is not possible that you order additional analyzer options.*

**Step 2 Choose the 1st BERT module – optional selection**  
**M8041A 8.5/16 Gb/s Generator Analyzer Clock, 3-slot AXIe module**

Option-No	Description
M8041A-0A2	Second channel for analyzer, license, only valid if option C08 or C16 are ordered
M8041A-0A3	Analyzer equalization, module-wide license, only valid if option C08 or C16 are ordered
M8041A-0G2	Second channel for pattern generator, license
M8041A-0G3	Advanced jitter sources for receiver characterization, module wide license
M8041A-0G4	Multi-tap de-emphasis, module-wide license
M8041A-0G6	Reference clock input with multiplying PLL, clock group wide license
M8041A-0G7	Advanced interference sources for receiver characterization, module wide license
M8041A-0S1	Interactive link training for PCI Express, clock group wide license, requires option 0G4 to allow de-emphasis negotiation. Only valid if option C08 or C16 are ordered
M8041A-0S2	SER/FER Analysis for coded and retimed loopback, clock group wide license. Only valid if option C08 or C16 are ordered

**Step 3****Choose the 2nd BERT module – basic selection****M8051A 8.5/16 Gb/s Generator Analyzer Clock, 2-slot AXIe module**

**Requires a M8041A module. If more than 2 channels are needed, 1 out of the following 4 options is a must**

Option-No	Description
M8051A-C08	BERT one channel, data rate up to 8.5 Gb/s
M8051A-C16	BERT one channel, data rate up to 16 Gb/s
M8051A-G08	Pattern generator one channel, data rate up to 8.5 Gb/s
M8051A-G16	Pattern generator one channel, data rate up to 16 Gb/s

*Note: In case a M8041A and a M8051A is ordered, you also need an external controller. All 5 slots in a 5 slot AXIe slot are used.  
If pattern generator only option G08 or G16 is ordered: It is not possible that you order additional analyzer options*

**Step 4****Choose the 2nd BERT module – optional selection****M8051A 8.5/16 Gb/s Generator Analyzer Clock, 2-slot AXIe module**

Option-No	Description
	Second channel for analyzer, license
M8051A-0A3	Analyzer equalization, module-wide license
M8051A-0G2	Second channel for pattern generator, license
M8051A-0G3	Advanced jitter sources for receiver characterization, module wide license
M8051A-0G4	Multi-tap de-emphasis, module-wide license
M8041A-0G7	Advanced interference sources for receiver characterization, module wide license

**Step 5****Choose the 3rd BERT module M8061A multiplexer**

**2:1 32.4 Gb/s when used with M8020A with de-emphasis option.**

**In case the M8041A and M8051A are selected please ensure that an additional chassis is ordered e.g M9505A or M9502A.**

Option-No	Description
M8061A-001	Multiplexer 2:1
M8061A-004	4-tap de-emphasis
M8051A-008	Extension to 8-tap de-emphasis

**Step 6****Choose BER software, must choose one of the two options.**

Option-No	Description
M8070A-OTP	Transportable License for M8000 Software
M8070A-ONP	Network license for M8000 Software

**Step 7****Test Automation Software for PCIe, USB, SATA RX test with M8000, is not part of the J-BERT M8020A structure. Don't forget to order, if needed**

Option-No	Description
N5990A- 010	Required option
N5990A-101	Support for PCI Express Gen1, Gen2 and Gen3 Receiver Tests for J-BERT and M8000
N5990A-102	Support for USB3.0 Receiver Tests for J-BERT, M8000 and ParBERT 7 Gbit/s
N5990A-103	Support for SATA 1.0, 2.0 and 3.0 RSG Tests for J-BERT and M8000
N5990A-301	PCI Express 3.0 Link Training suite for J-BERT and M8000

**Step 8 Choose the infrastructure.**  
**Usage of standards AXIe chassis are possible, but please be aware that Agilent is the only vendor that provides the USB interface. Usage without a chassis is not possible.**

Option-No	Description
M8020A-BU1	AXIe chassis, 5-slot with embedded AXIe controller. Software is pre-installed on embedded controller. Recommended configuration if a customer needs a M8041A. Cannot be ordered when a M8051A is selected
M8020A-BU2	AXIe chassis, 5-slot, does not include a PC. Customer requires an external PC. Recommended configuration if customer needs a M8041A with M8051A or M8061A.
M9048A	Only needed if option M8020A-BU2 is selected and highest download speed is required. Not needed if the USB interface is used. PCIe desktop adapter: Gen2, x8, clock isolation
M9045B	Only needed if option M8020A-BU2 is selected and highest download speed is required. Not needed if the USB interface is used. PCIe laptop adapter: Gen1, x1

**Step 9 Choose accessories**

Option-No	Description
M8048A-001	ISI channels, four short traces, 8 to 13 inches
M8048A-002	ISI channels, four long traces, 14 to 34 inches
M8048A-801	Short matched cable pair, SMA (f) to SMA (f) for cascading M8048A ISI channels
M8041A-801	Matched cable pair, 2.92 mm (f) to 2.92 mm (f), two pairs are recommended for connecting M8041A with M8061A
M8051A-801	Clock distribution cable for M8051A
15442A	Four SMA cables, unmatched

Note: Content of default accessories included in shipment.

**M8041A module**

8 x 50 Ω terminations, commercial calibration report ("UK6"), certificate of calibration, ESD protection kit

**M8051A module**

4 x 50 Ω terminations, clock synchronization cable, commercial calibration report ("UK6"), certificate of calibration

**M8020A-BU1**

M9505A AXIe chassis with embedded controller, USB cable, getting started guide, AXIe filler panel, power cord

**M8020A-BU2**

M905A AXIe chassis, USB cable, getting started guide, filler panel, power cord

**M8070A**

CD-ROM with M8070A system software

## Recommended accessories

Please order for M8041A and M8051A at least one set of matched pair M8041-801 per data out and data in to achieve best signal performance.

<b>Step 10</b>		<b>Choose warranty and service plan</b>	
Option-No	Description		
R-51B-001-Z	Return to Agilent – 3 years		
R-51B-001-5Z	Warranty Assurance Plan – Return to Agilent – 5 years		
R-50C-011-3	Calibration Assurance Plan – Return to Agilent – 3 years		
R-50C-011-5	Calibration Assurance Plan – Return to Agilent – 5 years		
R-1380-M8000	Productivity assistance		

<b>Publication title</b>	<b>Pub number</b>
M8020A J-BERT High-Performance BERT datasheet	5991-3647EN
M8048A ISI channel datasheet	5991-3648EN
M9052A and M9505A 2-and 5 slot AXIe chassis data sheet	5990-6584EN
M8061A Multiplexer with de-emphasis data sheet	5991-2506A
M9505A AXIe Chassis 5-slot data sheet	5990-6584EN



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(BP-01-15-14)

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Published in USA, February 21, 2014  
5991-4032EN



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