SDC 20

BY Developers FOR Developers

Storage Developer Conference
September 22-23, 2020

Track Overview: Solid State Storage Solutions

Mark Carlson
Kioxia
Co-chair SNIA Technical Council

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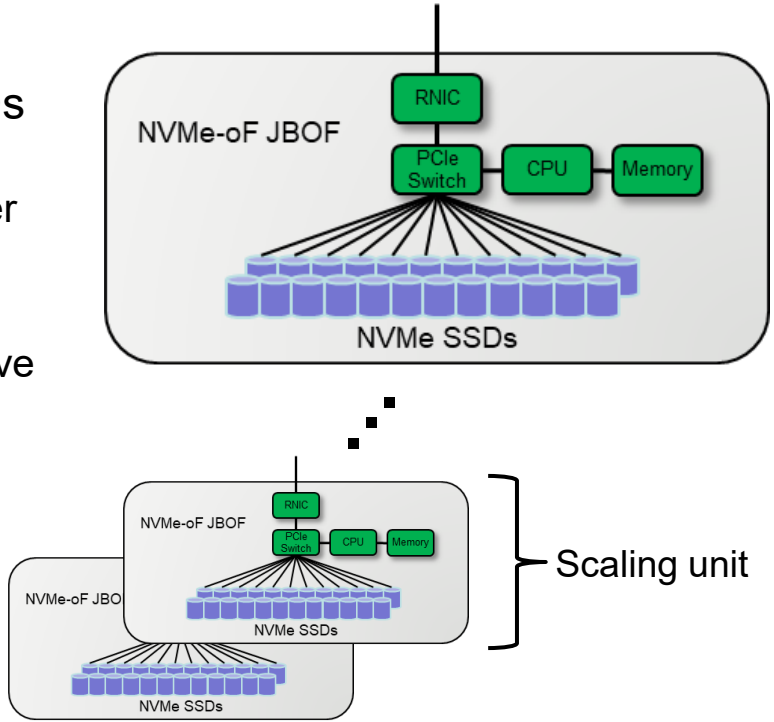
Enabling Ethernet Drives

Mark Carlson
Kioxia

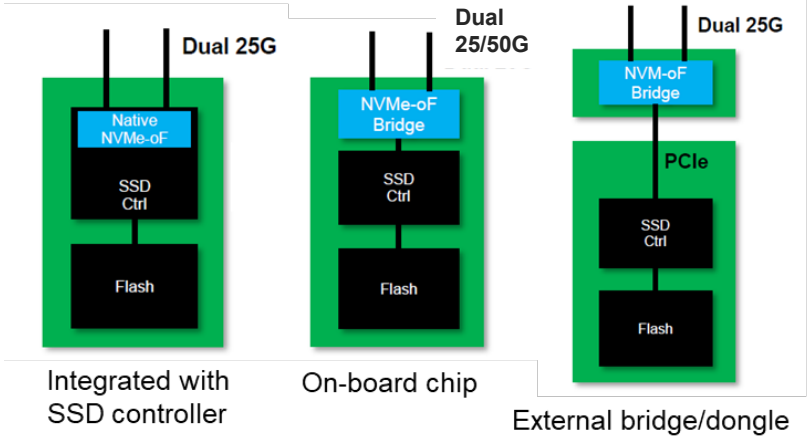
NVMe-oF Storage Targets Today

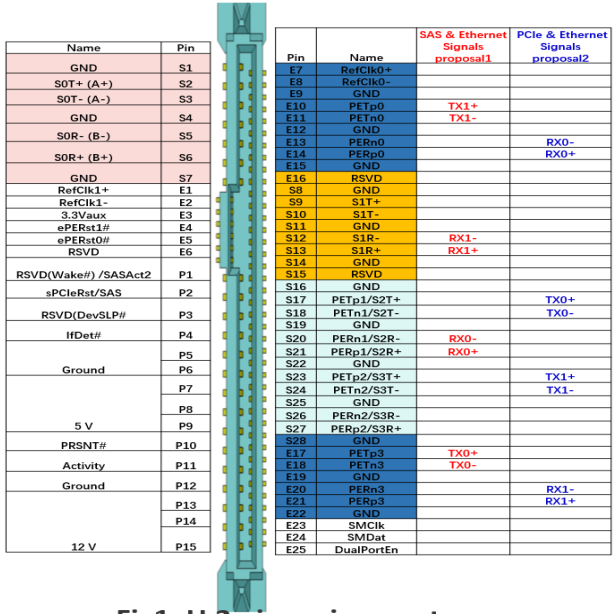
- Systems terminate the NVMe-oF connection and use PCIe based SSDs internally
  - SSDs behind an array/JBOF controller
- Performance Limits
  - SSD performance increasing faster than CPU NVMe-over-Ethernet-to-drive use cases
  - NIC performance
  - Latency - Store and Forward architecture
- Cost – CPU, SOC/rNICs, Switches, Memory don't scale well to match increasing SSD performance



eSSDs

- Different eSSD designs today
- Some will support multiple interfaces and protocols
  - Ethernet, PCIe, SAS, SATA
  - RoCE, TCP





Name	Pin
GND	S1
S0T+ (A+)	S2
S0T- (A-)	S3
GND	S4
S0R- (B-)	S5
S0R+ (B+)	S6
GND	S7
RefClk1+	E1
RefClk1-	E2
3.3Vaux	E3
ePERst1#	E4
ePERst0#	E5
RSVD	E6
RSVD(Wake#) /SASAct2	P1
sPCIeRst/SAS	P2
RSVD(DevSLP#	P3
IfDet#	P4
Ground	P5
	P6
	P7
	P8
5 V	P9
PRSNT#	P10
Activity	P11
Ground	P12
	P13
	P14
12 V	P15

Pin	Name	SAS & Ethernet Signals proposal1	PCIe & Ethernet Signals proposal2
E7	RefClk0+		
E8	RefClk0-		
E9	GND		
E10	PETp0	TX1+	
E11	PETn0	TX1-	
E12	GND		
E13	PERn0		RX0-
E14	PERp0		RX0+
E15	GND		
E16	RSVD		
S8	GND		
S9	S1T+		
S10	S1T-		
S11	GND		
S12	S1R-	RX1-	
S13	S1R+	RX1+	
S14	GND		
S15	RSVD		
S16	GND		
S17	PETp1/S2T+		TX0+
S18	PETn1/S2T-		TX0-
S19	GND		
S20	PERn1/S2R-	RX0-	
S21	PERp1/S2R+	RX0+	
S22	GND		
S23	PETp2/S3T+		TX1+
S24	PETn2/S3T-		TX1-
S25	GND		
S26	PERn2/S3R-		
S27	PERp2/S3R+		
S28	GND		
E17	PETp3	TX0+	
E18	PETn3	TX0-	
E19	GND		
E20	PERn3		RX1-
E21	PERp3		RX1+
E22	GND		
E23	SMClk		
E24	SMDat		
E25	DualPortEn		

Fig1. U.2 pin assignment

SFF-8639 connector

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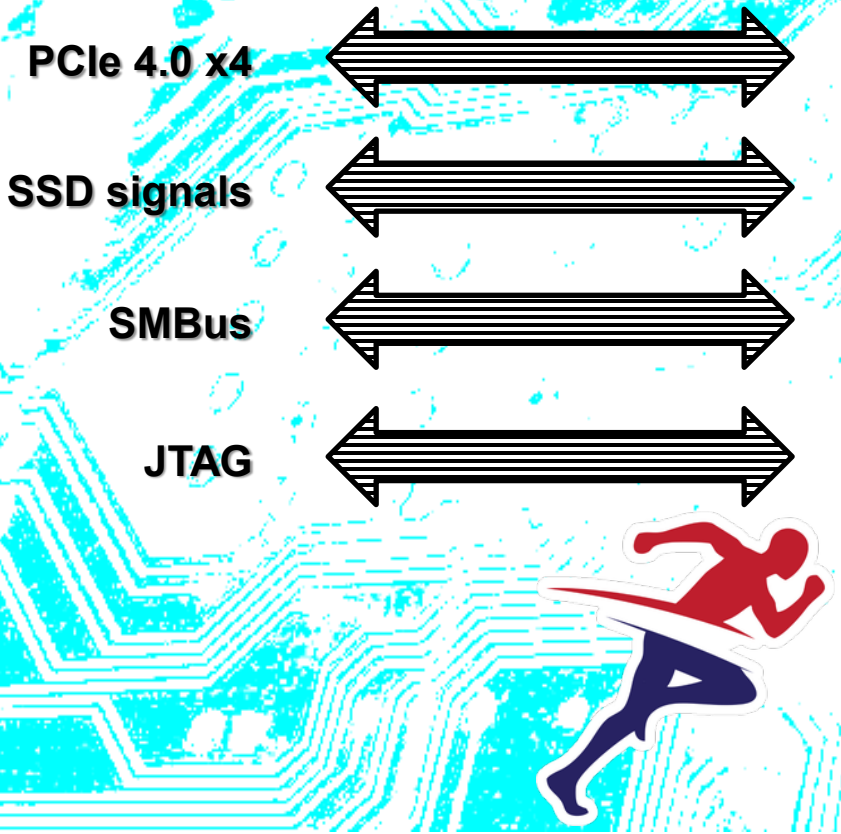
An SSD for Automotive Applications

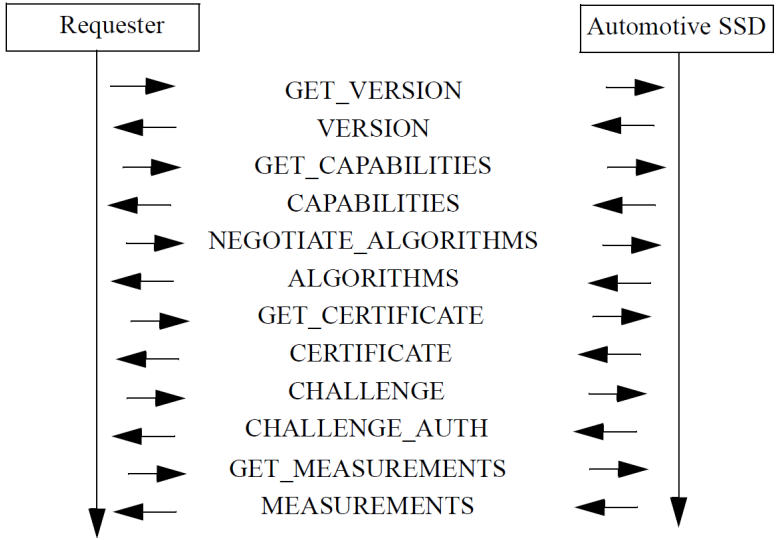
Bill Gervasi
Principal Systems Architect
bilge@nantero.com

64 GT/s peak throughput



Security and authentication

DMTF & Oasis



Automotive SSD must be hack proof

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SDC 20

- Participate in our online chat for this track at <TBD>
- Check out the Birds of a Feather (BoF) sessions
- Please be sure you rate each session you watch – you'll see a box under the video
- For additional details see the *Introduction to Virtual SDC* video (https://www.snia.org/SDCintro)
- ***Enjoy the SDC 2020 virtual event!***