UFS Host and Device IP Requirements

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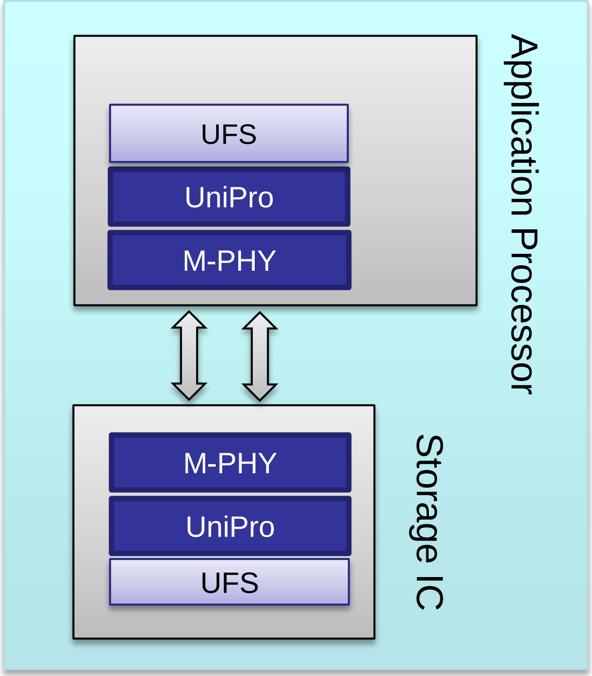
UFS Project Checklist

AP / SoC

- Security
- UFS driver
- UFS HCI
- UFS host controller
- UniPro controller
- M-PHY



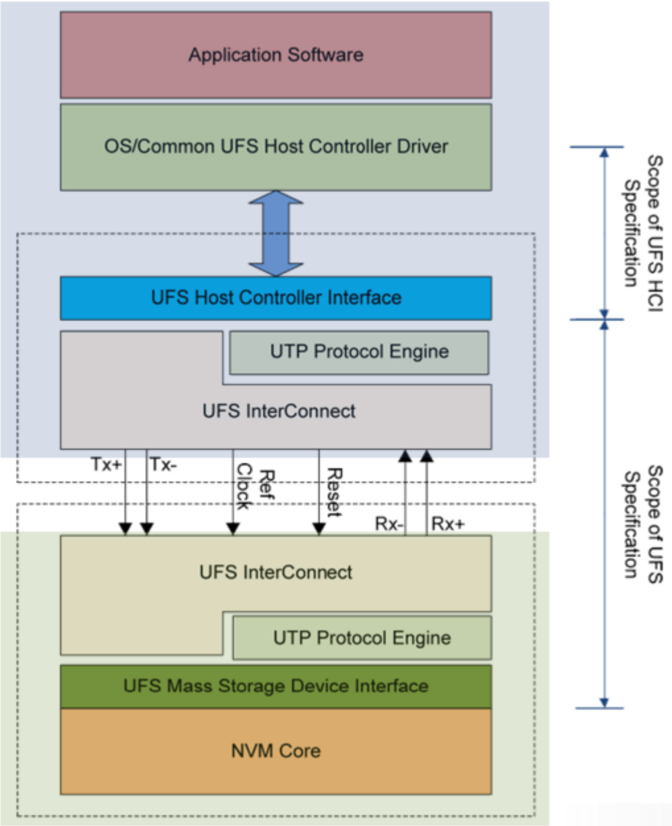
UFS Device

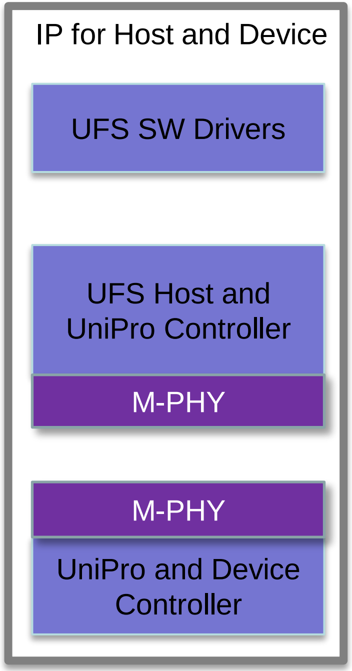
- NAND flash
- Flash management
- UFS device controller
- UniPro controller
- M-PHY

UFS Host and Device IP

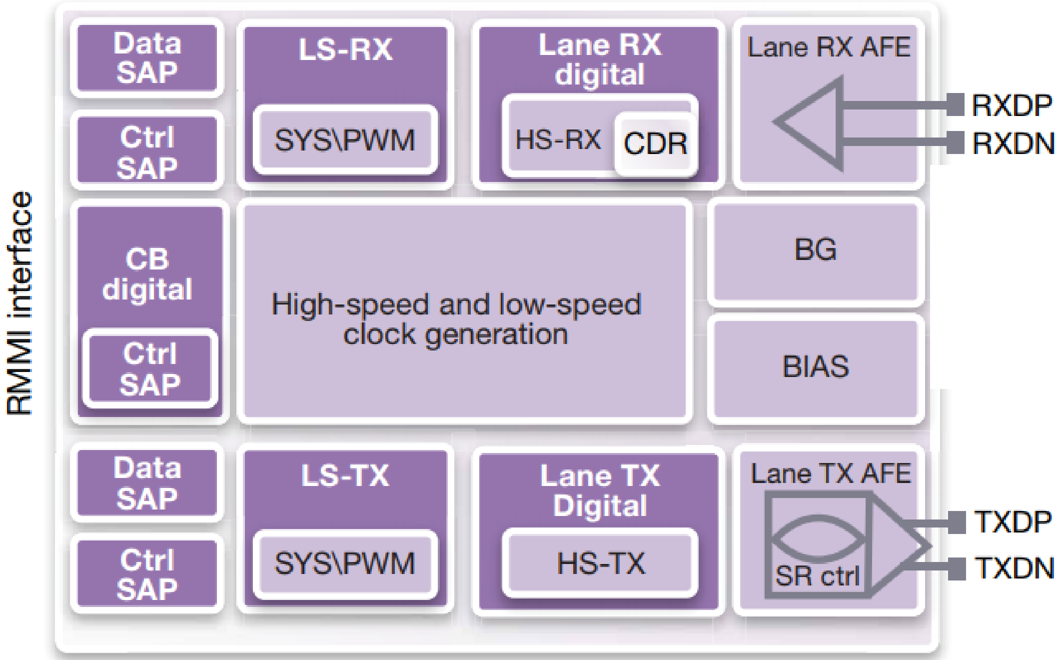
Application Processor

UFS Storage Device





MIPI M-PHY



Variety of speeds

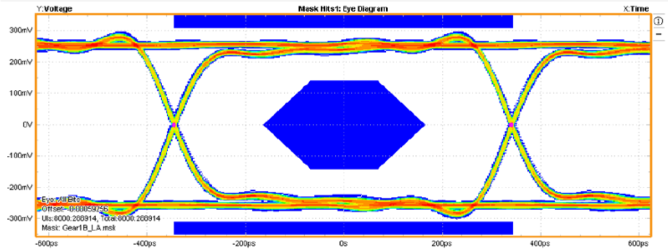
Low power

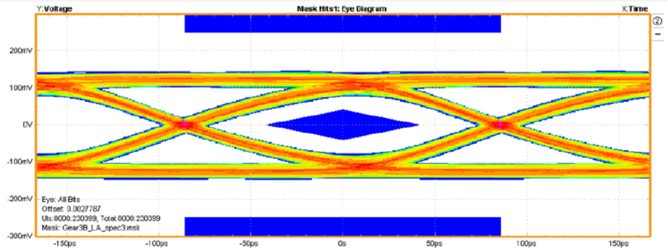
Very fast transitions

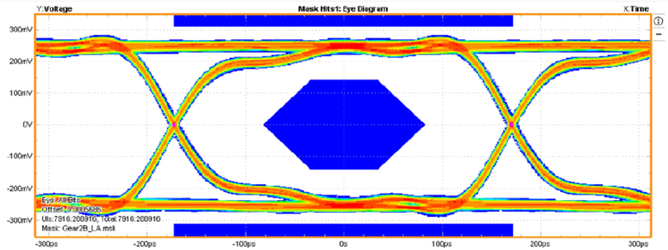
M-PHY "mobile friendly"

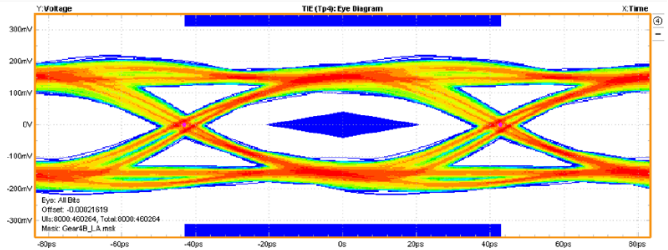
MIPI M-PHY v4.1 Proven in Silicon

HS TX Eye diagrams

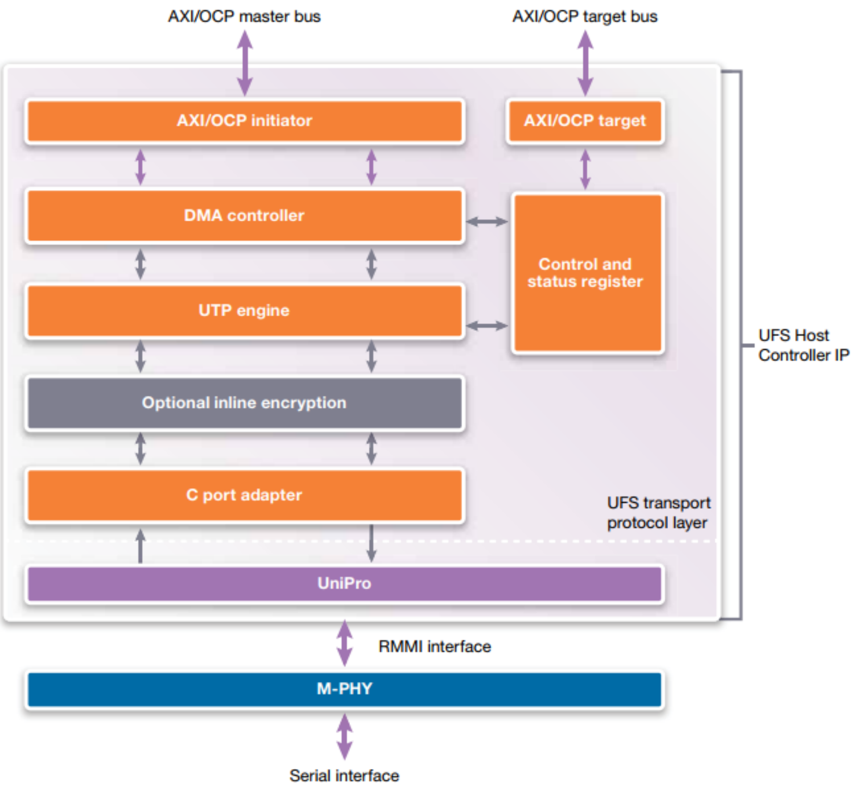

HS-G1B (LA, 0dB, TP1)


HS-G3B (LA, -6dB, TP2)


HS-G2B (LA, 0dB, TP1)


HS-G4B (LA, -6dB, TP3 CTLE+DFE)

UFS Host Controller w/ MIPI UniPro



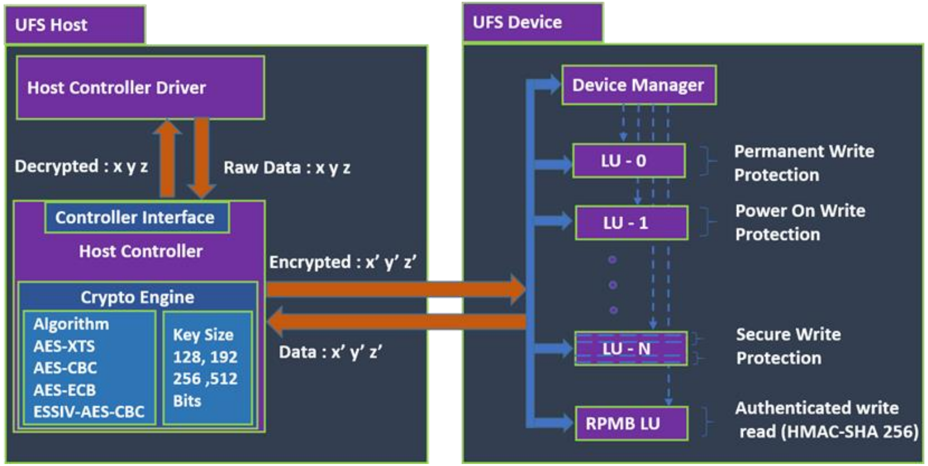
Flash Memory Summit

Security Features

Encryption capabilities that meet mobile/Android needs

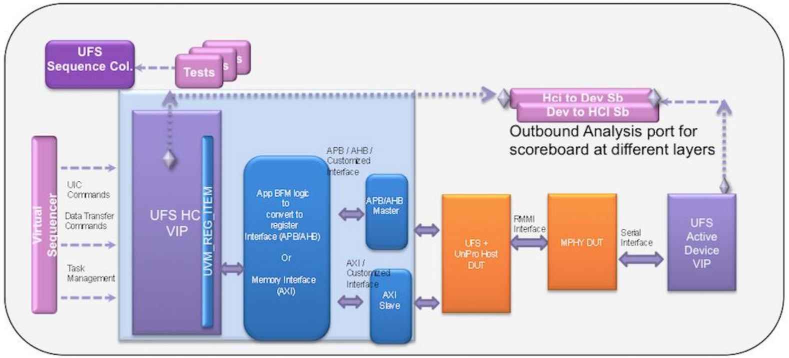
- Android supports full-disk encryption
  - The encryption algorithms are AES-CBC or ESSIV-AES-CBC
- Android supports file-based encryption
  - The encryption algorithms are AES-XTS or AES-CBC-CTS

- UFS supports AES-XTS, AES-CBC-CTS, AES-CBC, ESSIV-AES-CBC and AES-ECB

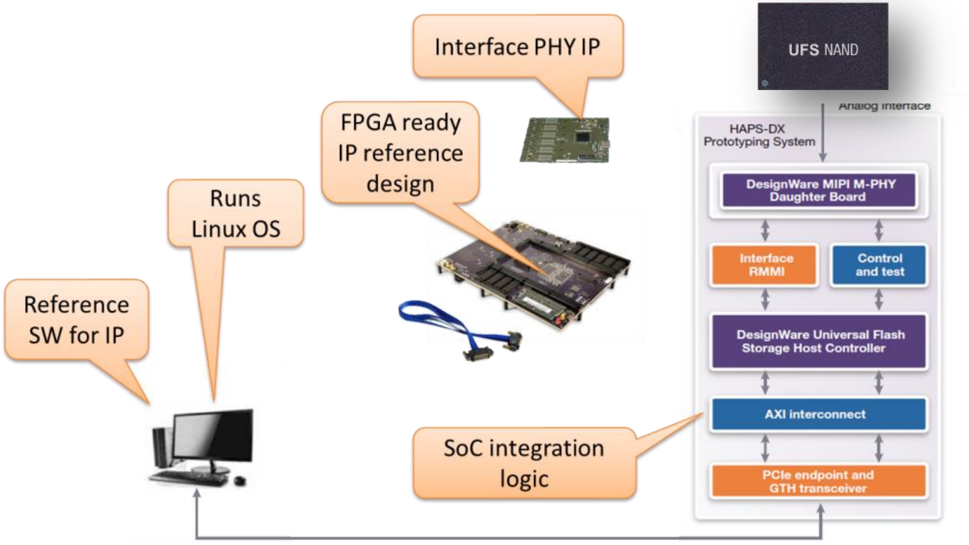


Verification & Validation Requirements Before Silicon

Verifying UFS with VIP



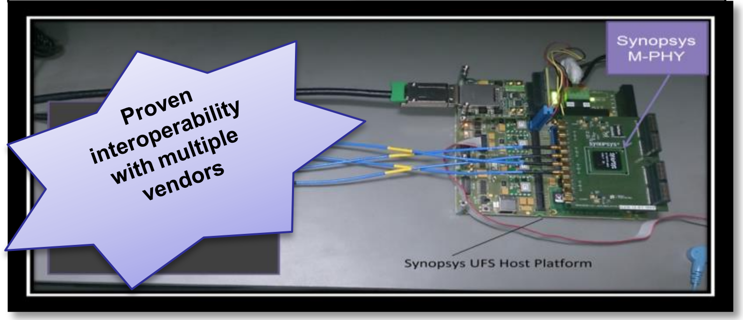
FPGA-based Prototype for HW **validation** & early SW development



Mature, Low Risk
UFS Host & Device IP Solution

Synopsys M-PHY, UniPro, UFS

- UFSA compliance
- MIPI UniPro/MPHY Interoperability events
- Golden host reference used by many vendors



UFS software drivers
Linux, OS-less

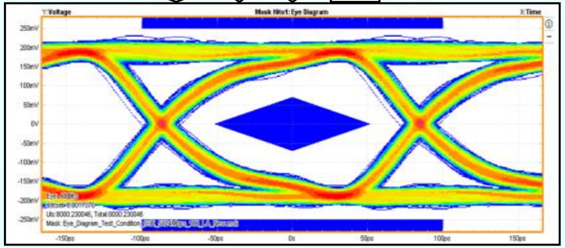
UFS host

Fully verified

UniPro

Fully verified, flexible

Din C C Dout *RMMI*



Silicon-proven M-PHY