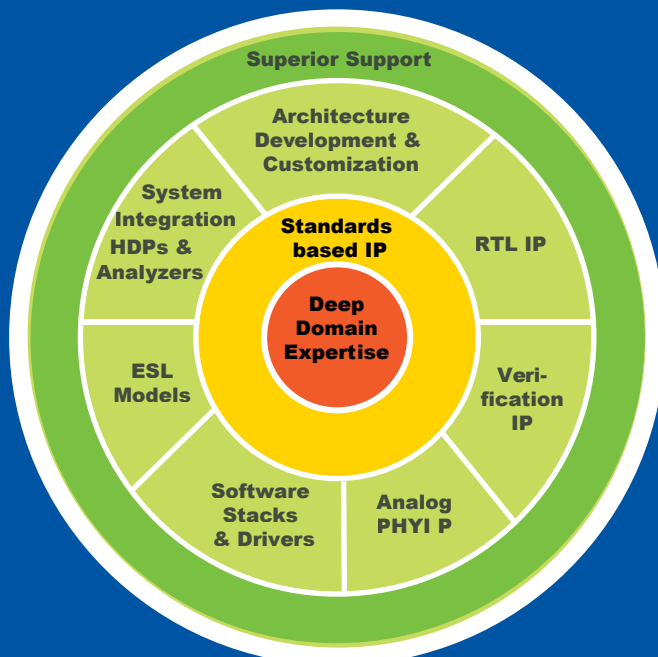
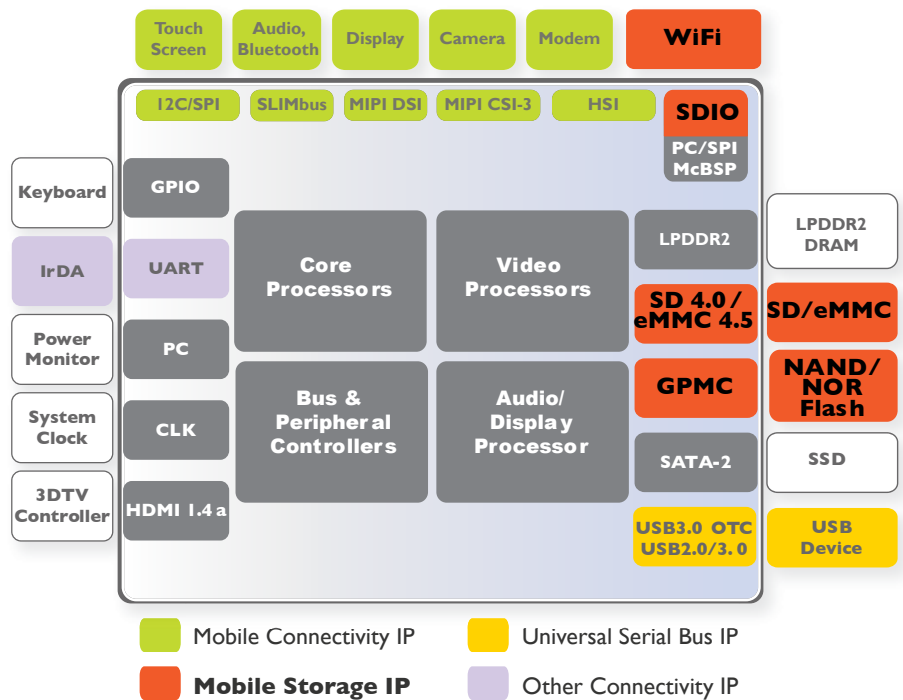


## Mobile Storage IP

Arasan Chip Systems is a leading SoC IP provider of a complete suite of standard interface building blocks consists of mobile storage interfaces for off-chip devices on one side and on-chip SoC system bus interfaces on the other side.

Arasan's mobile storage IP core and PHY support a complete suite of most up-to-date standard mobile storage interfaces including the latest UFS, eMMC, SD, SDIO, CF+, xD, MS, MS-Pro, and ONFI.

For easy integration to your SoC, Arasan's mobile storage IP supports many popular on-chip system buses including AXI, AHB, APB, OCP, microcontroller, and custom interfaces.

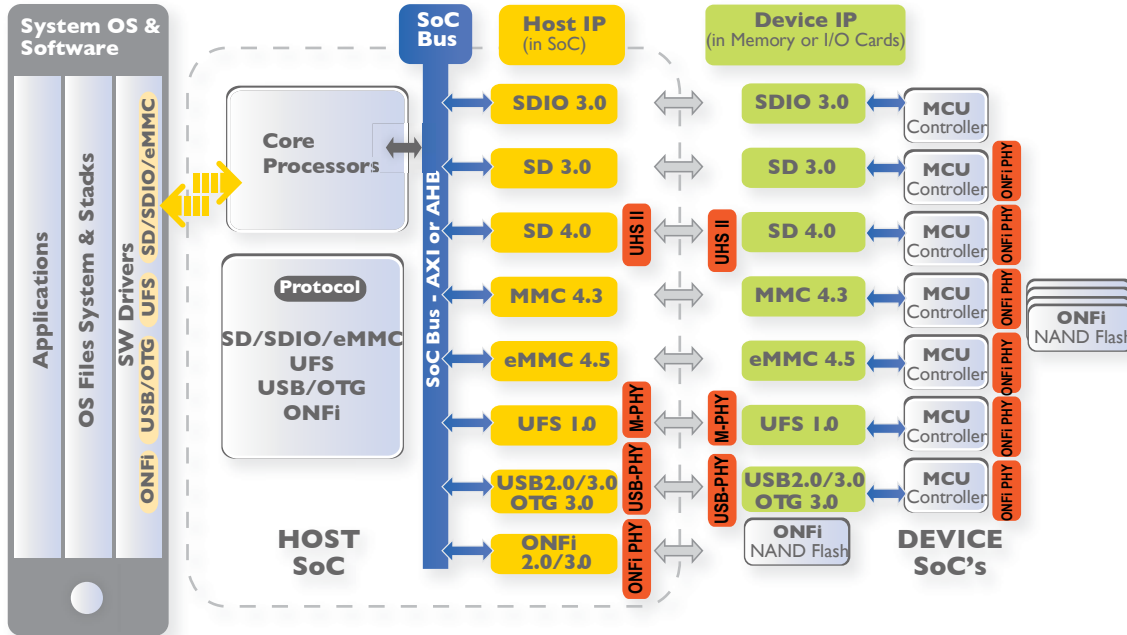


## Total IP SOLUTIONS

Arasan provides a Total IP Solution which encompasses all aspects of IP development and integration including analog and digital cores, verification IP, software stacks and drivers, ESL models and hardware validation and analysis platform.



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**ONFI NAND Flash Controller & PHY**

Arasan NAND Flash Controller consists of IP cores and PHY compliant to ONFI 3.0/2.3 specs. Integrated with patent pending dynamically configurable BCH ECC engine and silicon proven NV-DDR2 PHY, Arasan NAND Flash Controller supports SLC and MLC NAND flash up to 128 Gbit with page size of 512B, 2KB, 4KB, and 8KB and 1, 4, 8, 12 or up to 32 bit error correction.

**Multi-Function Storage Controller Core**

Arasan multi-function storage controller core is an integration of several industry standard storage and memory specifications into a single IP solution. Optimized for size and performance, it shares common functional blocks to minimize the die size.

**SD/SDIO/eMMC/Controller Core & PHY**

Arasan SD and e-MMC IP cores and PHY are fully compliant to the latest SD/SDIO and e-MMC specification. Arasan SD 4.0 IP cores and UHS-II PHY support up to 2TByte SDXC capacity running up to 1.56Gbps per lane. Arasan e-MMC 4.5 supports HS200 SDR up to 200MB/sec throughput with tuning capability for high performance. It also supports boot mode, partition management, and RPMB.

**UFS**

Arasan UFS IP cores and PHY are fully compliant to JEDEC UFS 1.0 specs. Incorporating MIPI UniPro 1.40 and M-PHY 1.00, Arasan UFS IPs support traffic class TCO and up to 4 lanes with gear-I at 1.25Gbps per lane. It also supports multiple power modes including Stall, Sleep, Hibern8, Disabled, and Power-off. Arasan UFS IP support AXI or AHB bus.

**Memory Stick / xD / SM**

Arasan MS/Pro (Memory Stick/Pro) is fully compliant with MS/Pro specification 1.03. Designed to enable high-quality and large capacity storage, it supports serial and parallel modes up to 32 GB, and is compatible with "MagicGate" content protection technology. The IP core supports many variations of MS including Pro, Duo, M2, and PRO-HG. Arasan also offers xD and SM IP for host and device.

**CF/CF+**

Arasan CF/CF+ (CompactFlash) IP core is fully compliant with CF card specification 4.1, PC Card 8.0, PCMCIA 2.1/ JIEDA 4.2, and ATA/ATA-6. The IP core is a highly optimized supporting True IDE Mode, PC card Memory Mode, PC Card I/O mode, PIO mode, and Ultra DMA. An independent clocking structure provides additional design flexibility and is optimized for system performance.

## DIFFERENTIATION



### Arasan Total IP Solutions

Arasan has proven track records of being the leader to deliver industry-first mobile storage host and device IPs for SD/SDIO and eMMC/MMC. Leveraging its established leadership position, Arasan's mobile storage and memory IP portfolio enables designers to accelerate their mobile storage and memory development and minimize the risks associated with production of a complex system-on-chip (SoC). Arasan provides its customers a competitive advantage through a combination of domain expertise, silicon proven IP, hardware / software tools, and customization services.

### Benefits of Total IP includes:

- Seamless integration from PHY to SW
- Assured compliance across all components
- Single point of support
- Easiest acquisition process (one licensing source)
- Lowest overall cost including cost of integration
- Lowest risk for fast time to market

Arasan provides a Total IP Solution which encompasses all aspects of IP development and integration including analog and digital cores, verification IP, software stacks and drivers, ESL models and hardware validation and analysis platform. In addition, Arasan's product offering is differentiated by:

### Deep Domain Expertise

Arasan participates in standards setting bodies for MIPI®, USB, UFS, eMMC/MMC, SD, and ONFI. Arasan uses this domain expertise to assist customers in architecting their solutions and staying current with the rapidly changing standards environment.

### Best Quality IP cores

Silicon-proven cores are IP-XACT compliant, RMM- compliant and have been optimized for power and performance with Atrenta Spyglass. All interfaces are native interfaces, no gaskets, providing for highest throughput.

### Early Verification

Arasan's verification IP suite includes bus functional (ESL) models enabling HW/SW integration early in the design process, simplifying and speeding integration.

### Customized Solutions

Arasan offers the unique ability to provide customization services such user-side bus modifications, additional FIFOs, and other customer requested features which delivers improved differentiation for the customer's system. Arasan maintains these customizations through its maintenance and upgrade program.

### Superior Customer Support

Arasan's development engineering team supports customers directly assuring the highest level of knowledge and fastest problem resolution.

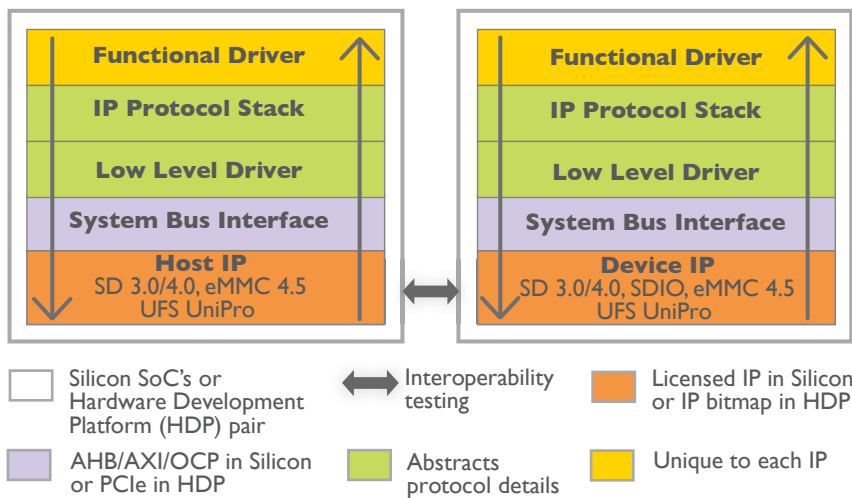
## About Arasan

Arasan Chip Systems is a leading provider of Total IP Solutions for mobile storage and connectivity applications. Arasan's high-quality, silicon-proven, Total IP Solutions include digital IP cores, analog PHY interfaces, verification IP, hardware verification kits, protocol analyzers, software stacks and drivers and optional customization services for MIPI, USB, SD, SDIO, MMC/eMMC, CF, UFS, xD and many other popular standards.

Arasan's Total IP products serve system architects and chip design teams in mobile, gaming and desktop computing systems that require silicon-proven, validated IP, delivered with the ability to integrate and verify both digital, analog and software components in the shortest possible time with the lowest risk.

Our corporate office is located in San Jose, California. We've been in business for nearly 15 years providing our customers everything they need to deploy our IP in their products. Our goal is to provide our customers with a solution that allows them to quickly integrate our IP while insuring project success.

## Software Stacks and Hardware Development Platforms



Some protocols, like SD, SDIO, eMMC, UFS, UniPro, and emerging protocols require entire software stacks for functional driver development. Arasan provides these software stacks as well as porting and customization services. For early software development and to enable interoperability or protocol testing, the IP's and software stacks are mapped into Arasan's Hardware Development Platforms.

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