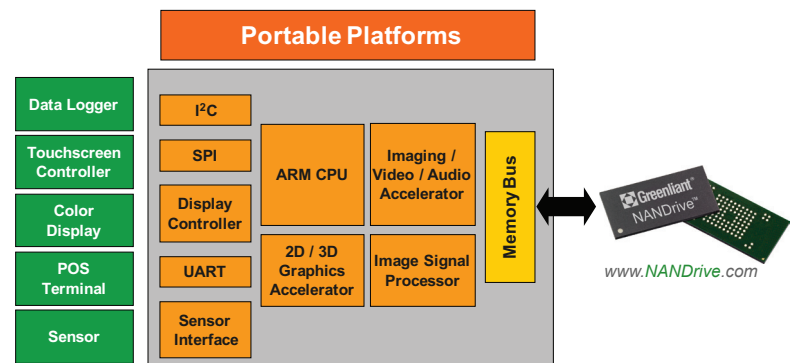# Using PATA NANDrive™ to Replace Legacy mDOC Designs

What is mDOC?

mDOC is a family of embedded flash drives that provide data storage and execute-in-place (XIP) functionality. mDOC products have been discontinued, but customers need not worry. PATA NANDrive™ solid state drives (SSDs) provide easy migration from legacy mDOC-based designs and offer customers long-term support. It is an easy-to-use alternative to mDOC on the NOR memory bus. Similar to mDOC, NANDrive SSDs have a small ball grid array (BGA) form factor, making them suitable for various embedded applications.

NANDrive™ Advantage Over mDOC

mDOC required a specific driver on the host system in order to operate. When there was a new mDOC revision, it often required software changes. PATA NANDrive uses the industry standard ATA interface and does not need any special flash translation layer (FTL) drivers. The ATA Task File registers are accessed on the memory bus and most of the host interface signals in PATA NANDrive operate in the same manner as in mDOC.

PATA NANDrive has the same pin-out across all capacities for backward compatibility and 1mm ball pitch for increased long-term reliability. NANDrive offers built-in advanced features such as SSD health monitoring, power interrupt data protection, user-configurable zones for storing secure data and "instant" data erase capabilities.

Typical Memory Bus Design Using NANDrive

www.NANDrive.com

PATA NANDrive Compared to mDOC

Category	Characteristic	PATA NANDrive	mDOC H3
Feature	Capacity	Up to 32 GB	Up to 8 GB
		Expansion using master/slave mode with another NANDrive	Expansion using cascading with another mDOC
	Host Interface	Standard ATA/IDE Bus ATA 6.0 compatible	mDOC specific driver
	Flash File System (FFS)	On chip	On chip
	XIP Boot Block	Achieved through external NOR	32 KBytes
	Security	20 Byte security ID	16 Byte security ID
		Configurable protection zones	Protection zones
	Power Consumption	Standby mode: 0.7 mA (typical)	Standby mode: Up to 5 mA
Performance	Sequential Read	Up to 60 MB/s	Up to 25 MB/s
	Sequential Write	Up to 40 MB/s	Up to 9 MB/s
Form Factor	Operating Temperature	0°C to +70°C (Commercial) -40°C to +85°C (Industrial)	0°C to +70°C (Commercial) -40°C to +85°C (Industrial)
	Package	Pin-out backward compatible	Pin-out backward compatible

Applications

— *Set-top box / Net-top box*
— *Video conferencing*
— *Multi-function printer*
— *VoIP system / PBX*
— *Point of Sale terminal*
— *Data logger*
— *VoIP system / PBX*
— *Wireless base station*
— *Router / Gateway / Switch*
— *Ultrasound and medical imaging*
— *Industrial automation & control*
— *Test & measurement instrumentation*
— *Video surveillance / ID terminal*
— *In-flight infotainment*

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