



DRAM Modules and Industrial Grade Flash Products

Product Guide



About ATP

Established in 1991, ATP has accumulated years of experience in the design, manufacturing, and support of high performance, highest quality DRAM modules and NAND flash storage products. ATP focuses in mission critical applications such as industrial/automation, telecom, medical, and enterprise computing where high levels of technical support/expertise, consistency of performance, and manufacturing quality are required. A certified Eco/Green partner of tier one OEMs, all ATP products are fully RoHS and China RoHS compliant.

A true manufacturer of both flash and DRAM products, ATP offers in-house design, testing, and product tuning at both the system and component levels. In addition, ATP supply chain support includes controlled/fixed BOMs and long term product life cycles.

ATP System-In-Package (SIP) flash product manufacturing process is the backbone to our superior build quality and durability. The industry leading SIP process involves advanced wire bonding, stacking, and encapsulation stages which make ATP products more consistently durable and reliable with waterproof, extreme temperature durability.



A technology driven company, ATP continues to expand its product portfolio with new unique products such as the GPS Photo Finder and micro-surveillance devices, enabling newer applications for flash storage. ATP also continues to develop storage based technologies such as its Smart 'n Secure (SnS) technology, allowing for the secure distribution of content on flash memory devices.

The ATP brand continues to grow through both consumer and industrial OEM sales channels. With multiple offices in the United States, Asia, and Europe, ATP offers worldwide support in both engineering and sales. ATP adheres to the strict ISO9001 QA standards for quality and compatibility. All ATP memory products are RoHS, CE, and FCC approved.

System-In-Package Technology

ATP's SIP (System-In-Package) manufacturing process encapsulates all exposed components and points of failure to extend protection against water/moisture, vibration/shock, ESD (electro-static discharge), and extreme temperatures.

ATP [SIP]



Protective encapsulation molding

Other Brand



Exposed components and contacts

Highest Quality Design, Manufacturing and Testing

ATP has implemented a systematic approach to a controlled design, manufacturing and testing procedures to ensure highest quality and reliability products. ATP is an ISO9001-2000 certified manufacturer. Its production facilities and processes have been audited and qualified by major tier-one OEMs. Rigorous quality management programs, raw material inspection, statistical process control, 100% testing, and a strict product qualification steps ensures reliable defect-free products and a low PPM failure rate. Through continuous process improvements, ATP is constantly refining and innovating our production procedures to build best-in-class products and solutions. With design and service centers worldwide, ATP offers global 24 hour round-the-clock support. Our special services include drop-shipping, kitting, special OEM or customized packaging.

Customer Services and Support

ATP offers extensive customer services and support to help you every step of the way from concept, through design implementation, to technical support and supply chain management.

ATP offers you a dedicated, knowledgeable and well-trained team of professionals to make your job easier and simpler with services that include technical support, online-support resources, data sheets, order and supply chain management system, and fulfillment services.



Networking/Telecommunications

The dynamic pace of the networking/telecommunications industry demands a memory product supplier with the flexibility of application specific in-house design as well as supply chain support for rapid deployment. ATP develops highly durable, reliable DRAM and solid state storage solutions with these demands in mind.

Applications

- WAN Optimization Appliances
- High Performance Storage Caching
- Routers/Gateways
- PBX/IPBX
- VPN/Firewall Appliances
- Servers



Enterprise Computing

ATP partners in Enterprise Computing typically have the highest demands in terms of raw performance, capacity, and reliability.

ATP's DRAM lineup includes modules that maximize the capability and performance of new systemboards. All certified, all endurance tested. Our FAE and Engineering teams have the expertise and support experience to both recommend and test any system configuration for maximum performance and reliability, with all factors such as heat/air flow, electrical demands, and module timing considered.

With the continued development of NAND flash technologies, the performance gains of solid state storage over traditional hard drives is vast. This is especially true in many enterprise computing environments which are typically higher traffic with an extremely high number of concurrent transactions. ATP industrial SSDs (Solid State Drive) and embedded flash products offer these performance gains in IOPS and also employ the newest wear leveling, data integrity technologies. The result is tremendous performance with predictable lifetime and reliability.

Applications

- Cache/Storage Systems
- Data Warehousing
- Multimedia Hosting/Video on Demand
- Banking Services
- Financial/Secure Transactions
- Metadata Logging
- High Speed Storage Caching



High Performance Computing

The leading edge, raw computing power needed by high performance parallel and cluster organized computers is computed in teraflops.

Along with this type of computing comes enormous needs for high performance DRAM modules. ATP high performance DRAM modules offer this performance, ideal for applications such as scientific simulations and research.

Applications

- Scientific Research
- Computational Fluid Dynamics
- Building and Testing of Virtual Prototypes
- Online Transaction Processing (OLTP) Structural Analysis, Modeling and Simulation
- Line-of-business (LOB) applications



Healthcare

Healthcare storage demands are not only mission critical but often require data integrity in environments with exposure to water and fluids. ATP flash products, built with SIP (System-in-Package) are fully waterproof and ideal for these conditions.

Medical monitoring/recording devices often also require high transfer speeds for high resolution video capture. ATP DRAM products are built with the highest performance DRAM IC components while ATP Industrial Grade Flash products allow for industry leading read and write transfer speeds. ATP CompactFlash allow for speeds up to 45MB/sec, while ATP SSDs get into 100+MB/sec.

Applications

- X-ray/Radiology
- Sonogram/Ultra Sound
- Fetal Monitoring
- Life support/Data Logging

ATP Strengths:

- Performance tuned for high IOPS
- Highest Read/Write transfer speeds available
- Highest density DRAM modules
- First to market: latest spec, newest performance level
- Long term supported fixed/controlled BOM
- Long term availability (including lower density products)
- Comprehensive flash storage device lineup for all interfaces/applications
- Application specific design, product performance tuning/customization
- In-house environment reliability testing, customized environmental testing available
- System level endurance/reliability testing
- SIP (System-In-Package) built flash products
- Extreme temperature, vibration, shock, ESD, dust, and water proof durability
- Compact form factors/profiles
- In-house FAE team support, "our lab is your lab"



Industrial PC/Embedded

Industrial/Embedded computing storage and memory implementations require a level of technical support and product tunability that only a true designer/manufacturer can offer. ATP designs, builds, and supports all of its own DRAM and flash products. With full control of the BOM, testing, and QA procedures, ATP can customize, build, and tune a storage/memory solution for the most demanding or unique embedded application.

Applications

- Industrial Automation
- Factory Machinery
- Industrial PCs
- Portable Electronics
- On-Board Data Storage
- Data logging



Rugged Handheld Computing

ATP works closely with the world leaders in rugged handheld, providing storage and memory products robust enough for all harsh outdoor environmental conditions. Rugged handheld units require more than just brute physical durability in all conditions. They also need storage/memory electrically sound enough for less than ideal, often unreliable power sources.

ATP flash products, built with SIP (System-in-Package) offers considerable protection from these elements along with waterproof, dust, and ESD proof durability. Each ATP industrial grade BOM configuration goes through extensive temperature shock, humidity, ESD, and physical stress testing before being considered for production. Low power consumption, power interruption protection, and a wide input voltage range are also features ideal for mobile rugged applications.

Applications

- Mobile ERP
- RFID
- Barcode Scanning
- Mobile Payment
- Two-Way Radios
- Rugged Smartphones



Transportation

Automotive and other transportations applications require long term data retention and product lifetimes as well as high tolerances for shock, vibration, temperature range, humidity, and moisture.

ATP industrial grade flash products are built with pre-screened, endurance tested SLC type flash components and are built for maximum product lifetimes and long term data integrity. These components together with ATP's SIP (System-In-Package) technology allows for long term performance in all environments and hard physical conditions.

Applications

- Auto/Marine GPS Navigation
- ECU/Engine Management
- Auto/Marine Entertainment
- Automotive Security
- Industrial Automation



Military/Aerospace

Military/Aerospace implementations of memory and solid state storage require products that can perform under the harshest and most unforgiving environments. Extreme temperature, vibration, and shock stresses are among a few of the tolerances needed to be taken into account. ATP flash products, built with SIP (System-in-Package) offers considerable protection from these elements along with waterproof, dust, and ESD proof durability. Each ATP industrial grade BOM configuration goes through extensive temperature shock, humidity, ESD, and physical stress testing before being considered for production.

ATP, a true manufacturer, can offer long term supply chain support for military applications where implementations and servicing components are needed for years, even decades.

ATP content copy protection and write protection technologies also allow for secure content distribution or recording.

Applications

- GPS/Navigation
- Secure Content Distribution
- Rugged Computing
- Rugged Personal Storage
- Surveillance/Media Recording

ATP Strengths:

- Industry's best, 100% pre-screened and tested SLC flash components
- SIP (System-In-Package) built flash products
- Extreme temperature, vibration, shock, ESD, dust, and water proof durability
- Long term availability (including lower density products)
- Application specific design, product performance tuning/customization
- In house environment reliability testing, customized environmental testing available
- Optional SnS content protection technology and write protection technology
- Lower profile and ultra compact form factors
- In-house FAE team support, "our lab is your lab"
- System Level endurance/reliability testing

Featured DRAM Products



Green DDR2 FB-DIMM Modules

- Up to 60% power saving compared to standard 1.8Vdd FB-DIMM
- Built-in reliability with CRC (Cyclical Redundancy Checking) protection and Bit Lane Failover Correction
- High throughput and better system memory expandability



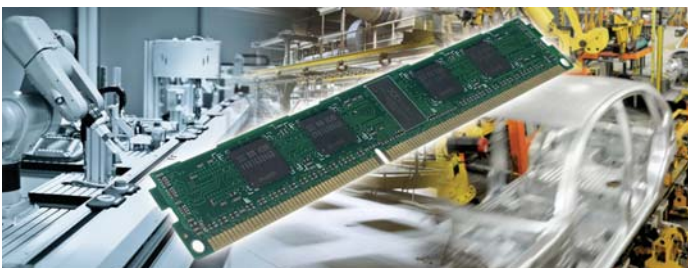
DDR3 Modules for NEHALEM SERVERS

- Higher data transfer rates, double the speed of DDR2 modules
- Low power consumption
- Optimizing memory-intensive systems' performances with less power and faster access time



DDR3 VLP Modules for BLADES SERVERS

- Higher data transfer rates, double the speed of DDR2 modules
- Low power consumption
- Optimizing memory-intensive systems' performances with less power and faster access time
- Ideal for use in blade servers, embedded computing, and other space-constrained applications



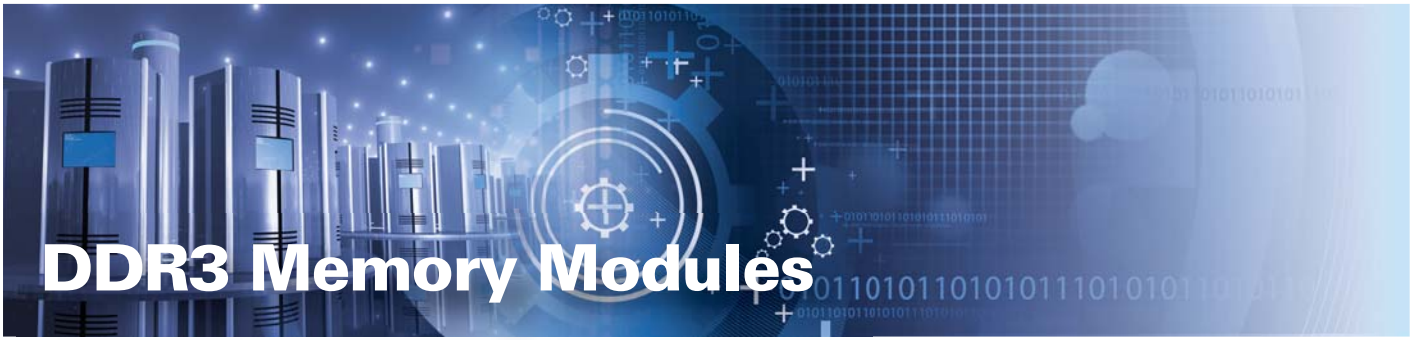
DDR3 VLP ECC Modules for Industrial PC

- Design to satisfy the demanding memory application for the embedded, telecom, military, and ruggedized computing
- Higher Data transfer rates, double the speed of DDR2 modules
- Low power consumption

The **VLP DDR3 ECC Modules** are well suited for space constrained next-generation computers and embedded systems such as:



- PC/104-Plus, PICMG SBCs: cPCI, PCI, PMC, VME
- SBB storage canisters
- Rugged Mobile Applications
- Embedded Single Board Computers (SBC)



DDR3 Memory Modules

- High performance, data rate up to 1600MHz/1866MHz.
- With 1.5Vdd the DDR3 memory modules are about 20% more efficient than the DDR2 counter parts which utilize 1.8Vdd.
- The signal quality of DDR3 memory module excels with the implementation of high precision self calibration and Fly-by topology.

DDR3 240-pin Registered DIMM							
ATP Part Number	Density	Organization	Component	Speed	Rank	Height	Availability
AL12M72E4BJH9S	4GB	512Mx72	256Mx4	1333	2	1.18"	Mass Production
AL12M72H8BJF8S	4GB	512Mx72	128Mx8	1066	4	1.18"	Mass Production
AL56M72L8BJH9S	2GB	256Mx72	128Mx8	1333	2	0.74"	Mass Production
AL56M72B8BJH9S	2GB	256Mx72	128Mx8	1333	2	1.18"	Mass Production
AL56M72M4BJH9S	2GB	256Mx72	256Mx4	1333	1	0.74"	Mass Production
AL28M72A8BJH9S	1GB	128Mx72	128Mx8	1333	1	1.18"	Mass Production
AL28M72K8BJH9S	1GB	128Mx72	128Mx8	1333	1	0.74"	Mass Production

DDR3 240-pin Un-buffered ECC DIMM							
ATP Part Number	Density	Organization	Component	Speed	Rank	Height	Availability
AQ56M72E8BJH9S	2GB	256Mx72	128Mx8	1333	2	1.18"	Mass Production
AQ28M72D8BJH9S	1GB	128Mx72	128Mx8	1333	1	1.18"	Mass Production

DDR3 240-pin Un-buffered Non-ECC DIMM							
ATP Part Number	Density	Organization	Component	Speed	Rank	Height	Availability
AQ12M64B8BKH9S	4GB	512Mx64	256Mx8	1333	2	1.18"	Mass Production
AQ56M64B8BJH9S	2GB	256Mx64	128Mx8	1333	2	1.18"	Mass Production
AQ28M64A8BJH9S	1GB	128Mx64	128Mx8	1333	1	1.18"	Mass Production

DDR3 204-pin Un-buffered Non-ECC SODIMM							
ATP Part Number	Density	Organization	Component	Speed	Rank	Height	Availability
AW56M64F8BJH9S	2GB	256Mx64	128Mx8	1333	2	1.18"	Mass Production
AW28M64B8BJH9S	1GB	128Mx64	128Mx8	1333	1	1.18"	Mass Production

DDR3 Application

Intel Server Board				
S5520SC	2GB DDR3-1333 REG ECC:AL56M72B8BJH9S	4GB DDR3-1333 REG ECC:AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC:AQ56M72E8BJH9S	
S5520UR	2GB DDR3-1333 REG ECC:AL56M72B8BJH9S	4GB DDR3-1333 REG ECC:AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC:AQ56M72E8BJH9S	
S5500BC	2GB DDR3-1333 REG ECC:AL56M72B8BJH9S	4GB DDR3-1333 REG ECC:AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC:AQ56M72E8BJH9S	
S5520HC/HCV	2GB DDR3-1333 REG ECC:AL56M72B8BJH9S	4GB DDR3-1333 REG ECC:AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC:AQ56M72E8BJH9S	

Supermicro Server Board				
X8DTN+	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
X8DTU	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
X8DTL-3	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
X8DAL-3	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
X8DAH+	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
X8DTT	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
X8DTH-i	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
X8DT3	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	

Tyan Server Board				
S7002	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
S7010	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
S7012	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
S7016	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
S7017	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	
S7020	2GB DDR3-1333 REG ECC: AL56M72B8BJH9S	4GB DDR3-1333 REG ECC: AL12M72E4BJH9S	2GB DDR3-1333 UNB ECC: AQ56M72E8BJH9S	

Complete DRAM Product Line

PRODUCT PORTFOLIO	TYPE	SPEED	FEATURES
FB-DIMM Family 	Fully Buffered	DDR2-800 DDR2-667 DDR2-667/800 Low voltage and Low Power Apple FB-DIMM	<ul style="list-style-type: none"> Up to 60% power saving compared to standard 1.8Vdd FB-DIMM Built-in reliability with CRC (Cyclical Redundancy Checking) protection and Bit Lane Failover Correction High throughput and better system memory expandability
DDR3 Family 	REG ECC	DDR3-1333 DDR3-1066	<ul style="list-style-type: none"> High performance, data rate up to 1600MHz. With 1.5Vdd the DDR3 memory modules are about 20% efficient than the DDR2 counter parts which utilize 1.8Vdd. The signal quality of DDR3 memory module excels with the implementation of high precision self calibration and Fly-by topology.
UNB ECC	DDR3-1333 DDR3-1066		
UNB Non-ECC	DDR3-1333 DDR3-1066		
DDR2 Family 	REG ECC	DDR2-800 DDR2-667 DDR-400	<ul style="list-style-type: none"> Dramatic performance evolution: The DDR2 memory modules support twice data transfer rate over DDR. Lower Power Consumption: The DDR2 memory modules consume 30% or less power than the DDR counter parts Higher memory module density, Multiplied system memory capacity.
UNB ECC	DDR2-800 DDR2-667 DDR2-533		
UNB Non-ECC	DDR2-800 DDR2-667		
DDR Family 	REG ECC	DDR2-400 DDR-333	<ul style="list-style-type: none"> Faster than SDRAM: 200-400Mhz Higher density than SDRAM - up to 4GB Low power consumption - 2.5V
UNB ECC	DDR-400 DDR-333		
VLP Family 	REG ECC	DDR3-1333 DDR2-800 DDR2-667 DDR-400	<ul style="list-style-type: none"> Ideal for space-limited systems - 60% less board space than standard DIMMs For blade servers which require low height due to cooling demand Also used in single board computers, remote systems, and network switches
UNB ECC	DDR2-800 DDR2-667		
UNB Non-ECC	DDR2-800 DDR2-667		
SODIMM / miniDIMM Family 	REG	DDR2-667 DDR-400	<ul style="list-style-type: none"> For space constrained applications, including notebooks and mobile workstations Power saving For use in embedded devices such as SBC (Single Board Computers), printers, routers, etc.
UNB ECC	DDR-800 DDR2-667 DDR-400		
UNB Non-ECC	DDR3-1333 DDR2-800		
PC133 Family 	REG ECC	PC133	<ul style="list-style-type: none"> Long term availability (including lower density products) for legacy systems.
UNB ECC	PC133		

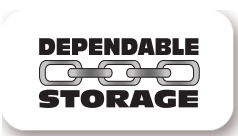
Certified by Server Board Manufacturers:





ATP Z-U130 eUSB SSD

Pin-for-Pin Replacement for Intel's Z-U130 Value SSD



Pin-for-Pin Replacement for Intel® Z-U130 Value SSD

The ATP Z-U130 eUSB SSD is a Pin-for-Pin replacement for Intel Z-U130 Value SSD. The ATP Z-U130 eUSB SSD is specifically designed to support applications such as server, storage/accelerator, networking, telecommunications, mobile and embedded computing, medical and automotive that previously used Intel's Z-U130 Value SSD. The ATP Z-U130 eUSB SSD meets or exceeds the Intel drive for power, reliability, profile, and RoHS compliance.

Ultra High Performance

The ATP Z-U130 eUSB SSD provides ultra high performance with SLC (Single Level Cell) NAND flash: sequential read up to 35MB/s, sequential write up to 25MB/s.

Product Flexibility

With a broad range of densities, and support for multiple operating systems, ATP Z-U130 eUSB SSD provides the flexibility needed for a wide array of applications. Small, frequently used files or even an entire operating system can be stored in the ATP Z-U130 eUSB SSD. Furthermore, the optional low-profile (36.9*26.6*6.75 mm) of the ATP Z-U130 eUSB SSD integrates easily into small footprint systems or embedded applications with little to no excess space.

Power Consumption Reduction

Without moving parts or refresh demands, ATP Z-U130 eUSB SSD typically requires less than 100mA of power to read data, reducing power consumption beyond that of standard HDDs and SSDs using other interfaces (IDE, PATA or SATA).

Time-to-Market Advantages

Most chipsets and platforms already support USB, whereas integrating complex or proprietary technologies delays development. Using a known, proven interface such as USB instead of other proprietary interfaces provides shorter design process and time-to-market advantages.

Features:

- Capacity: 512MB ~ 8GB
- USB 2.0 Compliant and 1.1 Compatible
- Advanced Flash Wear-Leveling Technology
- Sudden PowerDown Data Corruption Protection
- Fixed Disk Mode and ZIP/Removable Interface Modes Available
- Ultra High Performance with SLC (Single Level Cell) NAND Flash : sequential read up to 35MB/s, sequential write up to 25MB/s
- High Reliability, MTBF (Mean Time Between Failures): 5 million hours
- Enhanced Bad Block Management Algorithm w/ECC

Embedded System Applications:

- Server
- Storage/Accelerator
- Networking
- Telecommunications
- Mobile and Embedded Computing
- Healthcare and Transportation



Certifications:

RoHS compliant / CE certification / FCC certification



Environmental Specifications:

Type	Standard	
Temperature	Operating	-40°C to +85°C (industrial temp range)
	Non-Operating	-40°C to +85°C (under 500 hours)
Humidity	Operating	8% to 95%, non condensing
	Non-Operating	8% to 95%, non condensing
Vibration	Operating	15G peak-to-peak Max
	Non-Operating	15G peak-to-peak Max
Shock	Operating	2,000G Max
	Non-Operating	2,000G Max
Altitude	Operating	80,000 feet Max
	Non-Operating	80,000 feet Max

Performance:

Type	Measurement
Data Transfer Rate	Read up to 35MB/s
	Write up to 25MB/s

Physical Dimension Specifications:

Type	Measurement	
	Standard	Low Profile
Length	36.9mm	36.9mm
Width	26.6mm	26.6mm
Thickness	9.65mm	6.75mm

Reliability:

Type	Measurement
Data Retention	10 years
Endurance	>2,000,000 cycles (program/erase, in normal applications)
MTBF (@ 25°C)	>5,000,000 hours

Part No. Cross Reference (with Intel):

Intel product code	Intel MM#	ATP P/N	Description
---	---	AF512SSGH	512MB Standard connector
---	---	AF512SSGI	512MB Low profile connector
SSDUSMS0001G1	888492	AF1GSSGH	1GB Standard connector
SSDUSMS0001G110	890946	AF1GSSGH	1GB Standard connector
SSDUSMS0001GL	890288	AF1GSSGI	1GB Low profile connector
SSDUSMS0001G1L10	890945	AF1GSSGI	1GB Low profile connector
SSDUSMS0002G1	888493	AF2GSSGH	2GB Standard connector
SSDUSMS0002G110	890944	AF2GSSGH	2GB Standard connector
SSDUSMS0002GL	890289	AF2GSSGI	2GB Low profile connector
SSDUSMS0002G1L10	890943	AF2GSSGI	2GB Low profile connector
SSDUSMS0004G1	888522	AF4GSSGH	4GB Standard connector
SSDUSMS0004G110	890942	AF4GSSGH	4GB Standard connector
SSDUSMS0004GL	890287	AF4GSSGI	4GB Low profile connector
---	---	AF8GSSGH	8GB Standard connector
---	---	AF8GSSGI	8GB Low profile connector



ATP Industrial Grade Flash Cards

ATP Industrial Grade Flash Cards are designed for mission critical applications where consistent performance is “crucial” in all environmental conditions. Using carefully screened SLC flash components, all ATP Industrial Grade flash products are built using SIP (system in package) technology, allowing for industry leading waterproof and extreme temperature durability.

- Operating/Storage Temp Range: -40°C to +85°C
- Fixed BOM available for all form factors
- System-in-Package Built, Humidity/Dust/ESD proof
- RoHS/China RoHS Certified
- Built with Pre-Screened Samsung SLC NAND
- sudden powerdown data corruption protection
- enhanced bad block management algorithm with ECC (Error Correction Code)
- MTBF: 2 million hours

Industrial Grade SD/SDHC, miniSD/miniSDHC, microSD

- Up to 22.5MB/sec Data Transfer Speed
- SPI Mode Compatible

Industrial Grade CompactFlash

- Up to 45MB/sec Data Transfer Speed
- IDE/Fixed Disk Mode Compatible
- UDMA Mode 5 Compatible



System-In-Package Technology

ATP's SIP (System-In-Package) manufacturing process encapsulates all exposed components and points of failure to extend protection against water/moisture, vibration/shock, ESD (electro-static discharge), and extreme temperatures.

ATP [SIP]






Protective encapsulation molding

Other Brand



Exposed components and contacts

Features & Specifications

	CompactFlash	SDHC/SD/miniSD/microSD	USB Drive
Product			
Models Available	Type I CompactFlash	N/A	Type A USB
Densities Available	Up to 16GB	SDHC: 4GB,8GB SD: Up to 2GB miniSD: Up to 4GB microSD: Up to 2GB	Up to 4GB
Support	Pure IDE, PIO, MW-DMA, UDMA mode	SD 1.1, SD 2.0	Bootable, AWARD BIOS update
Read Performance (Seq)	Up to 45MB/sec (UDMA Mode)	Up to 22.5MB/sec	Up to 35MB/sec
Write Performance (Seq)	up to 36MB/sec (UDMA Mode)	Up to 20MB/sec	Up to 28MB/sec
MTBF	2,000,000 Hours	2,000,000 Hours	2,000,000 Hours
Operating Temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Dimensions	36.4 X 42.8 X 3.3 (mm)	SD: 32 X 24 X 2.1 (mm) miniSD: 21.5 x 20 x 1.4 (mm) microSD: 15 x 11 x 1 (mm)	17.5 X 36.6 X 9.4 (mm)
Operating Voltage	2.7V - 3.6V 4.5V - 5.5V	2.7V- 3.6V	5V



ATP Solid State Drives



Optimized for Mission-Critical and High-Performance Storage Applications

Introducing ATP Solid State Drives, ultra reliable, high performance storage solutions designed for mission-critical applications which demand the highest level of reliability, durability, and data integrity. With significant performance and power advantages, ATP SSDs can benefit a wide range of I/O storage applications such as streaming video servers, servers, telecommunications, networking, virtualization, and more.

For streaming video servers, ATP SSDs save power while cutting space requirements. For servers, ATP SSDs deliver better reliability while using less power compared to traditional HDDs. Virtualization is an area where ATP SSDs can also provide a major performance increase. ATP SSDs enable virtualized servers and virtualized storage to significantly reduce data-center IOPS performance bottlenecks. With data-center costs based on square footage and the amount of power consumed, ATP SSDs provides relief via significantly higher performance per watt and a very low heat load on air-conditioning systems. ATP SSDs are produced under a stringent RoHS and Green Package compliant manufacturing process to guarantee a consistent high level of build quality and performance.

Outstanding Performance

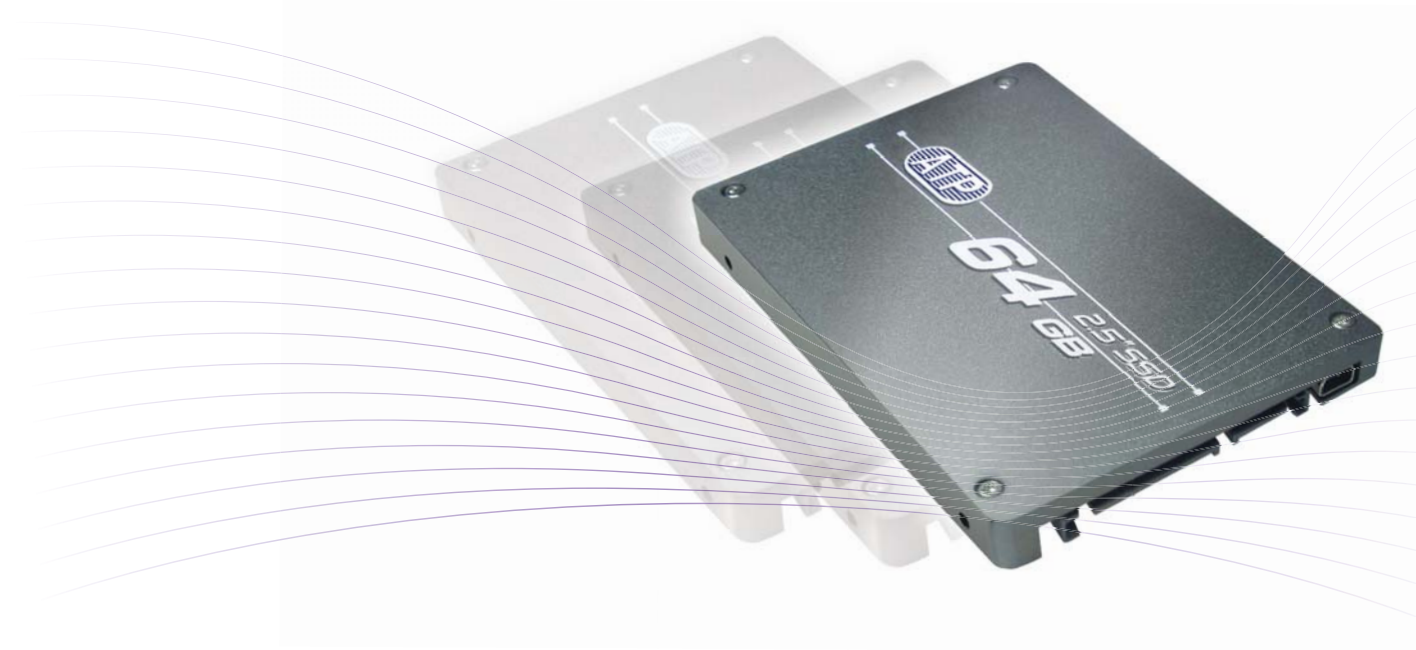
- Optimized for a high 10000 IOPS (Input/Output Operations per Second)
- Sequential data transfer rates up to 170MB/sec

Highly Reliable

Pre-screened SLC (Single Level Cell) components along with onboard ECC (Error Correction Code), wear leveling algorithms, and reserve block management technologies allow for MTBF ratings over 3 million hours. ATP SSDs also include SMART functionality for health status monitoring/logging and sudden power down protection against data corruption.

Full Manufacturer Support and Product Consistency

Being a true manufacturer gives ATP the ability to support customers with a fixed BOM policy, ensuring both consistent compatibility and performance. ATP also fully supports its customers with product customization and tuning to optimize performance in particular or specialized applications.



Product Details

Specifications

• 2.5" Type (100.0±0.3 x 70±0.3 x 9.5±0.3 mm)	
Host Interface	<ul style="list-style-type: none"> Serial ATA 2.0a specification SATA 3.0 gigabits per second
Transfer Mode	<ul style="list-style-type: none"> PIO Mode 0, 1, 2, 3, 4 Multiword DMA 0, 1, 2 UDMA Mode 0, 1, 2, 3, 4, 5, 6

Performance	
• Sustained Data Read: 170MB/sec. (max.)	
• Sustained Data Write: 140MB/sec. (max.)	
• Access time: < 0.1ms	
• Random IOPS: 6,000 (4KB random read)	

Power Requirement	
DC Input voltage	• +5VDC, ±5% (4.75V - 5.25V)
Power Consumption	<ul style="list-style-type: none"> Sustained write: Typical 410mA Sustained read: Typical 310mA Idle: Typical 140mA Stand-by: Typical 140mA

Environmental specifications	
Temperature Range	• Non-Operating: -40°C to +85°C
Humidity	• 8%-95%, non-condensing
Vibration	• 5G, 7-2000Hz, (12Cycle/Axis) 3 axes
Shock	• 1500G/0.5ms, 3 axes
System Reliability	<ul style="list-style-type: none"> ECC (BCH): 8 or 15 bit in 512Bytes MTBF: > 3,000,000 Hours Memory type: Single layer cell (SLC) NAND Flash memory Write endurance: >10 years@ 1TByte/day Read endurance: unlimited Wear Leveling: support

Quality, Performance, Reliability, Service

Why ATP?



- Complete line of DRAM modules and NAND Flash products
- Extensive support on DDR3, DDR2, DDR, SDRAM, DRAM memory modules
- Extensive Interface expertise and support on SATA, PATA, CF, UDMA CF, USB, and SD Flash Products
- Application specific form factors (VLP, UDIMM, RDIMM, miniDIMM, SORDIMM, SOCDIMM)
- Unique SIP (System-In-Package) technology
- Extended temperature product offering for industrial grade applications



True Manufacturer

A true manufacturer of both flash and DRAM products, ATP offers in-house design, testing, and product tuning at both the system and component levels.



Customization

- Custom module and Flash designs
- Electronic Design and Manufacturing Services (EDMS)
- Patented Security features
- Private Labeling

Quality, Performance, Reliability, Service



Sales and Engineering Support

- Efficient, competent and professional sales staff to serve your needs
- Application specific design and customization to meet your specific requirements
- Fast turn sample and production orders
- Global manufacturing facilities, technical support, and logistics support including experience with contract manufacturer coordination.



Controlled Bill of Materials (BOM)

- Quality and Engineering documents provided
- Long product life cycles with buffer inventory support and advance PCNs



Test for Reliability

- Extended and Industrial Temperature Testing
- Environmental testing
- Application testing



Industry Association and Compliance



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