



# Embedded Storage Products and Solutions



SYSTEMS SOLUTIONS

ENCLOSURES & COMPONENTS

ROTARY SWITCHES

CABINETS

## Elma's Storage Solutions

For over 35 years Elma has been bringing innovative storage solutions to defense and industrial applications across the globe. Field proven reliable, high speed, high capacity standard and custom products and systems that get the job done.

- Mobile ground based missile defense systems
- Telecom networking
- Airborne intelligence, surveillance and reconnaissance
- Global broadband satellite communications
- In flight tactical weapons systems
- Industrial equipment controls
- Medical imaging
- Ground based radar systems
- Railway Signalling Control and Automatic Route Setting
- Shipboard systems



**Our Products**

VPX, VME and cPCI products meeting the capacity and recording rates for today's data rich applications. Models featuring front removable or fixed drives and the latest SATA III solid state drives for high speed operation. Build extensible multi-terabyte per slot storage arrays with RAID protection and security - conduction and air cooled. Direct SATA attached solutions as well as network attached (NAS) solutions.

**6U and  
3U VPX**



**6U VME**



**6U cPCI**



**Build multi-terabyte SATA storage arrays**

Expandable multi-slot, multi-terabyte SATA storage arrays allow you to grow your system to meet increasing capacity needs. Directly attached to the SATA ports on the host SBC to enable RAID options for data redundancy and protection.







### Our Products

Custom and off the shelf mezzanine solutions for cost effective storage upgrades as well as fast repair and replacement. Single board computer mount allows multi-terabyte capacities plus compute element in a single slot.



#### XMC and PMC Options

Mezzanine PMC and XMC boards offer an economical way to upgrade system data storage requirements without consuming additional slot space. When mounted to a host SBC or carrier card, mezzanine storage options enable serial or parallel connections for fast data transfer. Elma offers a wide range of air and conduction cooled mezzanines supporting the latest high capacity solid state drives.

### AppliPak

Fully integrated, custom board assemblies combining VPX, VME or cPCI single board computers with your choice of storage mezzanines, operating systems and device drivers. Supplied and supported by Elma as a complete assembly.



Single Board Computer



Storage mezzanine



OS, device driver, ruggedization, test and verification



AppliPak custom board assembly

## Our Products

When off the shelf solutions don't meet your requirement, the leaders in custom storage solutions are here to help. Elma specializes in products which bridge the gap between legacy interfaces and today's leading edge drive technology.

### SCSI to SATA Conversion Boards

Add leading edge SATA drive technology while maintaining backwards compatibility to your legacy storage interface.



### SATA III Solid State Drives

Elma uses best in class SLC and MLC solid state drives in 2.5", 1.8", MO-297, MO-300 and CF sizes.

### Data Security, Guaranteed

We leverage the latest solid state drive technology to ensure data security, reliability and durability:

- AES 256 data encryption
- Destruct and non-destruct secure erasure
- Dynamic wear leveling for long SSD life
- Write protection



## Qualified, Verified, Rock Solid Solutions

Elma's storage design team continually tests and qualifies our storage assemblies to some of the most rigorous standards in the embedded computing industry. Assembly level configuration control eliminates end of life concerns and guarantees seamless transition to the latest drive technologies.

- Extended temperature thermal cycle testing
- Extensive read / write benchmark testing for data integrity
- Conformal coating option
- Assembly level life cycle testing and MTBF analysis

## System Solutions

Let Elma provide custom and off the shelf packaging for your storage subsystem as well as the complete computing platform. We offer complete system integration services and chassis level environmental conditioning for a range of applications.



### Custom ATR Chassis

Complete rugged chassis options ideal for HPEC systems requiring low to high capacity storage volumes



### 19" Rackmount Chassis

cPCI, VME, VPX and mother board based systems target a wide range of applications in industry and defense where specialty data storage is a requirement.

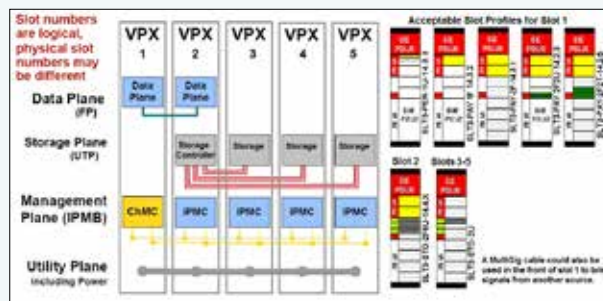


### PCI/104 and COM Express

Custom storage options in 2.5", 1.8", MO-297, MO-300 and CF sizes. Fixed and removable bays.

## Custom backplanes for high speed VPX arrays

As data rates on newer solid state drives surpass 6Gbps, signal integrity in backplane architecture becomes critical. Elma has been designing and manufacturing leading edge standard and custom backplanes for over 30 years.



Product Name	Form Factor	Primary Features	Drive Type	Rotating / SSD	Ext Temp	Ext Shock and Vibe	Cond Cooled	Controller or Bridge Type
3U VPX Drive Carrier/Controller - Model 5330/1	3U VPX	Dual drives, conduction or air cooled, 3Gbps controller	2.5" SATA	Rotating and SSD	Yes	Yes	Yes	Marvell 88SE6440 PCI Express (x4) to 4 Port SATA II
3U VPX Drive Carrier - Model 5332/3		Dual Drives, 6Gbps, conduction or air cooled	2.5" SATA	Rotating and SSD	Yes	Yes	Yes	No controller - straight SATA
3U VPX Drive Carrier - Model 5335/6		Dual drives, front removable	2.5" SATA	Rotating and SSD	Yes	No	Yes	Marvel 88SE9480 PCI Express to 8 port SATA III
VPX SATA Storage Model 5650/1/2	6U VPX	3 drives, high capacity, expandable, DVD version	2.5" SATA	Rotating and SSD	Yes	Yes	Yes	No controller -straight SATA
VPX SATA Storage Model 5655		Dual front removable drives, high capacity, expandable	2.5" SATA	Rotating and SSD	Yes	Yes	No	No controller -straight SATA
VPX SATA Storage Model 5632/3		4 drives, high capacity, expandable	2.5" SATA	Rotating and SSD	Yes	Yes	Yes	No controller -straight SATA
VME SATA Storage - Model 5050	6U VME	3 drives, high capacity, expandable, DVD version	2.5" SATA	Rotating and SSD	Yes (no DVD)	Yes (no DVD)	No	No controller - straight SATA
VME SATA Storage - Model 5055		Dual front removable drives, high capacity, expandable	2.5" SATA	Rotating and SSD	Yes	Yes	No	No controller - straight SATA
VME SCSI Disk Model 5056		Legacy replacement. SCSI r SATA interface, front removable	2.5" SATA	Rotating and SSD	No	No	No	SCSI to SATA Bridge
VME SCSI Disk - Model EDM2		Legacy replacement also with secure erase and write protect	2.5" SATA, CFast, DVD	Rotating and SSD	No	No	No	SCSI to SATA bridge
SATA cPCIStor - Model 6010	6U cPCI	Versatility, front removable CFast option	2.5" SATA, CFast,DVD	Rotating and SSD	Yes (no DVD)	Yes (no DVD)	No	SiI3124 - PCI/PCI-X to 4 Port SATA II
cPCI SATA Storage - Model 6050		3 drives, high capacity, expandable, DVD version	2.5" SATA	Rotating and SSD	Yes (no DVD)	Yes	No	No controller - straight SATA
cPCI SATA Storage - Model 6055		Dual front removable drives, high capacity, expandable	2.5" SATA	Rotating and SSD	Yes	Yes	No	No controller - straight SATA
XMCStor - Model 9289	XMC	Front removable, high speed	CFast (Serial CompactFlash)	SSD	Yes	Yes	No	SiI3132, PCI Express (1x) to 2 Port SATA II
ccXMCStor - Model 9290		Conduction cooled	CFast (Serial CompactFlash)	SSD	Yes	Yes	Yes	SiI3132, PCI Express (1x) to 2 Port SATA II
XMCDisk - Model 9292		High capacity, low cost in SSD and rotating	2.5" SATA	Rotating and SSD	Yes	Yes	No	SiI3132, PCI Express (1x) to 2 Port SATA II
PMCStor - Model 9275-79	PMC	Dual drives, front removable	Compact Flash	SSD	Yes	Yes	No	SiI0680A - PCI to 2 Port IDE/PATA
ccPMCStor - Model 9245-46		Conduction cooled / air cooled	Compact Flash	SSD	Yes	Yes	Yes	SiI0680a - PCI 133 to 2 Port IDE/PATA
SATA PMCDisk - Model 9262		High capacity, low cost in SSD and rotating	2.5" SATA	Rotating and SSD	Yes	Yes	No	SiI3512 - PCI to 2 Port SATA I
SecureStor - Model 9247/9248		Write protect / secure erase	Compact Flash	SSD	Yes	Yes	Yes	FPGA based PCI 33 to IDE/PATA controller

\*\*\* Elma storage products accept currently available drive capacities. Please inquire about the latest capacities.



**MOVE AHEAD WITH CONFIDENCE**

For security, reliability and long term support in the years ahead, trust Elma's design team to deliver standard and custom data storage solutions in the exact configuration your application requires.





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