

# ICEBOX series

ICEBOX-SQ

ICEBOX-ISQ

S-ATA RAID Solutions " Made in Germany"

The requirements towards an S-ATA-based solution correspond to those of storage systems with SCSI or FC hard disks. The high-quality ICEBOX® series design combines top quality standards with excellent efficiency and an outstanding investment protection.

ICEBOX® systems are available as 8-channel or 16-channel solutions and can be, depending on the model, delivered with these external host interfaces

- 2 x U320 SCSI
- iSCSI, 2x 1000BaseTX

Thus the ICEBOX® can be used as Direct Attached Storage (DAS) or as mass storage for FC- and IP-based Storage Area Network (SAN) environments.



Additional security and data availability of the ICEBOX® series systems is provided by the latest technologies, such as intelligently expanded S.M.A.R.T. Correction against sudden hard disk failures, and Snapshot On The Box against accidentally deleted, modified or otherwise corrupted data.

With the user-friendly, intuitive graphical interfaces on JAVA or browser basis, the ICEBOX® systems can be integrated and managed quite easily and conveniently in almost any network environment.

Notification in the event of a fault occurs via SNMP, SMTP or "Win Pop-up" (netsend) to enable a quick response and to re-establish the secure status of the system.

Additional important system components are fans and power units. These are executed redundantly in the ICEBOX® systems and can be replaced even during operation (hot plug). The system does not need to be opened for this.

The system can be locked at the front, the front operating elements are protected against misuse by password.



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**Reliability:** The S.M.A.R.T. Correction technology includes Disk Self Test, Disk Scrubbing (integrity test of data with recognition of faulty sectors and correction of parity errors) and Disk Cloning (periodic check of hard disks, data are swapped to hot spare drives in case of errors).

The sturdy industrial design made of high-quality stainless steel stands out through its superb EMC properties and excellent thermal behaviour.

The individual hard disk carriers are protected from vibrations. Optionally the systems can be equipped with a battery module (protects the Controller Cache).

**Performance:** Because of the powerful Intel XScale i80321 64-bit RISC (600 MHz) microprocessors, the ICEBOX systems are numbered among the fastest S-ATA RAID solutions ever.

The systems are equipped with 1024 MB cache that can be expanded up to a maximum of 2048 MB.



Hot Plug Fan Replacement



Hot-Plug Carrier



Hot Swap power supply 3x 300 Watt

**Easy handling:** Administration of the ICEBOX® systems is independent of the operating system and the platform and does not need a software installation.

Configuration is done either through Terminal Emulation (RS232), SSH, Web browser, ICEWorld Java GUI, front operating field with display (password protected), or directly at the unit (keyboard and VGA port).

All system-critical components and parameters are monitored. In case of a fault, notification occurs via SNMP Trap, e-mail (SMTP), Win Pop-up (netsend), fax or Pager.

The RAID controller is on a cold swap rack and can be exchanged quickly and easily at need.

**Best scalability:** ICEBOX® systems can accept a maximum of 16 S-ATA (II) hard disks. It is possible to configure up to 8 RAID arrays and up to 128 partitions (slices, UDV) per box.

LUN addressing occurs independent of the Host. Dynamic RAID expansion (online expansion) is possible and automatic rebuild is also supported.

The FC version supports Dual Loop as well as utilisation in a Switched Fabric (with SAN Masking) environment, iSCSI systems, and MPIO (multipathing).

## Technical specifications in brief:

Host Interface:	2x U320 SCSI or 2x 1 GbE iSCSI
Hard Disk Interface:	1.5 Gigabit S-ATA, 3.0 Gigabit S-ATA II
Number of carriers:	depending on type, 8 or 16
Hard disk types:	S-ATA und S-ATA II 3,5 " hard disks
Available hard disks:	250, 500, 750 and 1000 GByte
Max. gross capacity per system:	up to 16.0 TByte
SMTP event notification:	Yes (e-mail, pager)
RAID:	<ul style="list-style-type: none"><li>• up to 16 S-ATA hard disks</li><li>• up to 8 RAID ARRAYS simultaneously, max. 16 slices per ARRAY</li><li>• RAID Level 0, 1, 0+1, 3, 5, 30, 50, JBOD, NRAID, 6, 60</li><li>• Automatic rebuild</li><li>• Hot plugging fans, power units, hard disks</li><li>• Administration through WebBrowser</li><li>• Messaging via SNMP, SMTP and "Win Pop-up" (netsend)</li></ul> Snapshot on the box



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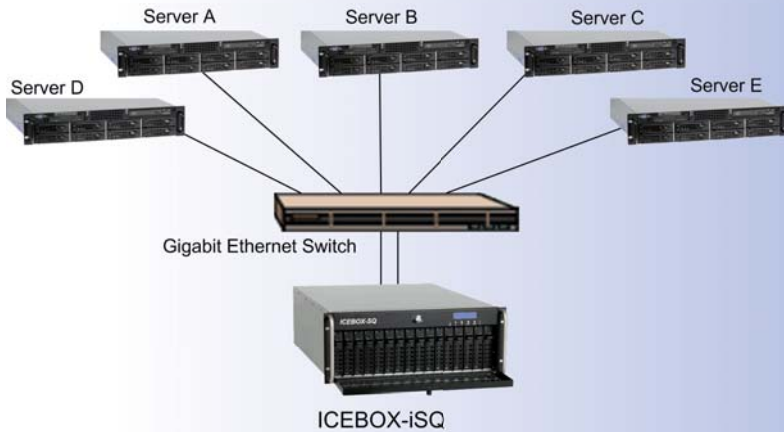
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ICEBOX-SQ

ICEBOX-iSQ

## Application examples for ICEBOX® iSCSI Systems in SAN environment

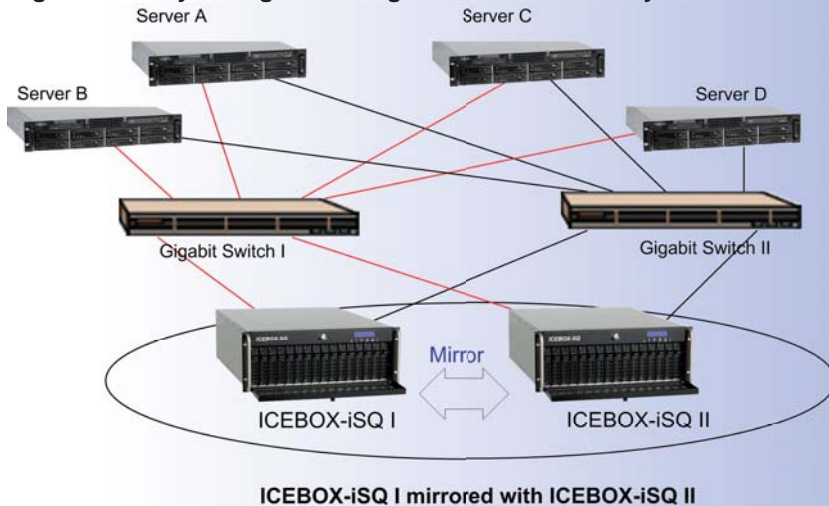
### Consolidation of memory requirement in IP SAN with ICEBOX® iSCSI systems



#### Advantages:

- Many servers share one reliable, high-quality disk storage system
- Comfortable storage administration
- Storage requirement can be easily expanded

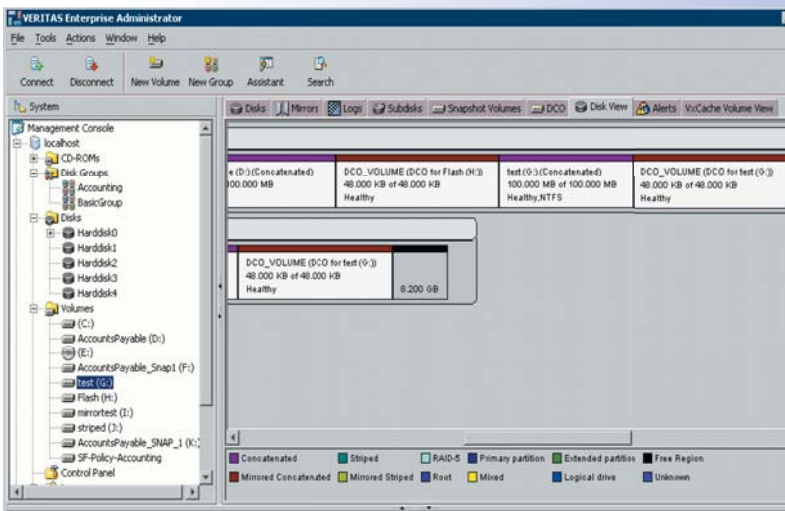
### High availability through mirroring of ICEBOX® iSCSI systems



ICEBOX-iSQ I mirrored with ICEBOX-iSQ II

#### Advantages:

- "No Single Point of Failure" due to Host-, Switch- and ICEBOX® redundancy



### Memory management with Veritas Storage Foundation





- Snapshots
- Data replication
- Mirroring
- Virtualisation
- Messaging



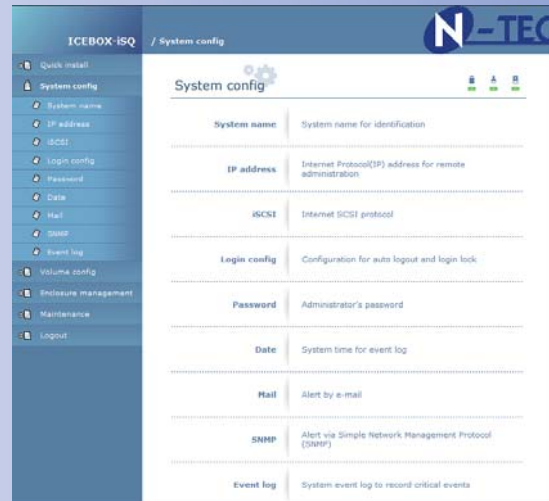
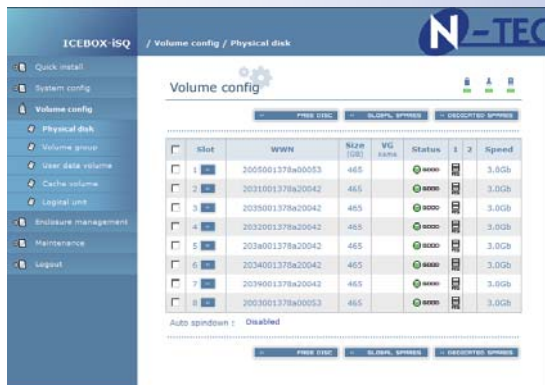
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## Technical Specifications

	ICEBOX-SQ	ICEBOX-SQ3	ICEBOX-SQ8LV	ICEBOX-iSQ	ICEBOX-iSQ8	ICEBOX-iSQ8LV
						
<b>Operating System</b>	independent from operating system and host transparent					
<b>CPU</b>	Intel XScale i80331 64 Bit RISC Mikroprozessor					
<b>Host Interface</b>	Ultra 320 SCSI			iSCSI (1000BaseTX)		
<b>Host Channels</b>	2					
<b>Disk Interface</b>	SATA 3.0 Gb/s					
<b>Disk Channels</b>	16	8		16		8
<b>Cache Memory (max.)</b>	1024 (2048)					
<b>RAID Level</b>	0, 1, 3, 5, 6, 10 (0+1), 50, 60, JBOD, NRAID					
<b>Hot Spare</b>	global and private					
<b>Hot Swap</b>	hard disks, fans and power supplies					
<b>Online Expansion</b>	yes					
<b>Stripe Size</b>	variable 4K, 8K, 16K, 32K, 64K, 128K					
<b>Write Option</b>	write through, write back					
<b>Remote Management</b>	Browser, SSH, RS232					
<b>Remote Alarm</b>	SNMP, SMTP, Win Popup, optional: Securion Interface (except LV models)					
<b>Lokaler Alarm</b>	optical (LED, display) and acoustic (beeper)					
<b>Access protection</b>	Lock, Password					
<b>Fans</b>	4x80mm	4x80mm	2x 80mm	4x80mm	4x80mm	2x 80mm
<b>Power supplies</b>	3x 300 W	2x 300W	2x 350W	3x 300 W	2x 300W	2x 350W
<b>Power Input</b>	range 100 ~ 240 VAC, 47-63 Hz, 10-5/12-6A FCC part 15, class B, EN55022, active					
<b>Environmental temp</b>	0° C ~ 50° C					
<b>Humidity</b>	20% ~ 75% non condensing					
<b>Dimensions in mm</b>	D600xH177xW482		D457xH178xW480	D600xH177xW482		D457xH178xW480
<b>Weight(without HDD)</b>	31 kg		24 kg	31 kg		24 kg

### Browser based configuration



rear view with controller slide



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