

# Technical specification

Product Name & Storage Media Type	Description
<p><b>PC-3000 SAS 6 Gbit/s System</b></p> <p>for HDDs based on SAS/SCSI interface</p>	<ol style="list-style-type: none"> <li>1. Allows to work with the HDDs directly, avoiding the Operation System influence</li> <li>2. Capable to work with damaged HDDs in a special technological (factory) mode</li> <li>3. The following procedures can be performed with the SAS/SCSI: <ul style="list-style-type: none"> <li>▶ General checking of HDD efficiency</li> <li>▶ Testing the surface for reading, writing, verification</li> <li>▶ Viewing the P-list and G-list tables with hidden defects</li> <li>▶ Viewing SMART parameters (Log Sense)</li> <li>▶ Viewing and changing the configuration of some HDD parameters</li> <li>▶ The Replication function allows both for creating an HDD image (full sector-by-sector copy) and for saving any HDD surface area to file on another HDD and writing saved data to selected media in various combinations between SAS, SCSI and SATA HDD/SSD drives</li> <li>▶ The Sector Editor provides the possibility to view and edit the defined surface areas</li> </ul> </li> <li>4. Other features: <p>IBM, Maxtor-Quantum, Fujitsu, HGST and Seagate Special utilities allow to test SAS HDDs in technological mode, to check and recover the service information. If any errors are detected, these utilities use additional Vendor code list. This list provides details about the root cause of the found error. In many cases this helps to exactly define all possible ways of repairing the HDD and recovering data from it.</p> <p>The Specialized utilities are used for testing and recovery of service information, modules, and configuration pages; recalculating (regenerating) of translator; testing of magnetic heads and surfaces with physical parameters; clearing of SMART, reset the counter of power cycles and working hours, HDD firmware uploading.</p> </li> <li>5. <b>Form factor:</b> Embedded PC expansion board which uses two adjacent slots</li> <li>6. <b>Interface type:</b> Four-channel PCI Express 2.0 5 Gbit/s</li> <li>7. <b>Diagnostic ports (location):</b> 4 - SAS (internal)</li> <li>8. <b>Maximum Data Transfer Speed:</b> 600 MB/sec for each port</li> <li>9. <b>Power adapter:</b> four-channel adapter with protection, the oscilloscope functionality and the measurement of the voltages and currents values. HDD connectors are internal</li> <li>10. <b>Supported HDD:</b> from 18 GB to 10 TB; 3.5", 2.5"</li> <li>11. <b>OS Platforms:</b> Windows 7, Windows 8, Windows 10; x86, x64, Windows 11 x64</li> <li>12. <b>Supported SAS/SCSI HDDs:</b> <p>Visit our official blog to see the <a href="https://blog.ancelab.eu.com/pc-3000-sas-list-of-supported-hard-drives.html">latest supported SAS/SCSI models</a>.</p> <p><a href="https://blog.ancelab.eu.com/pc-3000-sas-list-of-supported-hard-drives.html">https://blog.ancelab.eu.com/pc-3000-sas-list-of-supported-hard-drives.html</a></p> </li> </ol>
<p><b>PC-3000 SAS 6 Gbit/s RAID System</b></p> <p>for RAID based on SAS/SCSI interface</p>	<p><b>PC-3000 SAS 6 Gbit/s RAID System</b> includes the functionality of the <b>PC-3000 SAS 6 Gbit/s System</b> and the <b>Data Extractor RAID Edition utility</b>.</p> <ol style="list-style-type: none"> <li>1. Opportunity to recover data when one or several drives have not only logical (deleted partitions, virus attacks, etc.) but also serious physical damages</li> <li>2. Opportunity to easily determine configuration and recover data with both automatic and advanced manual methods</li> <li>3. Automatically identifies standard RAID levels, supports combined levels and optional configs, plus ZFS RAID (RAID-Z and others), Btrfs RAID, WSS</li> <li>4. Powerful interactive mode to analyze and detect non-standard RAID configuration in sophisticated cases</li> <li>5. Connects to any type of RAID members, works even with physically damaged HDDs inside RAID imaging them on-the-fly</li> <li>6. Emulation of a RAID controller: <ul style="list-style-type: none"> <li>▶ Mounting of virtual RAID to Operating System for further analysis</li> <li>▶ High speed of readout, analysis and imaging</li> <li>▶ Recovering data from redundant arrays — even with bad sectors or damaged members</li> </ul> </li> </ol>

7. **Possible array members:**
  - ▶ Up to 4 HDDs connected to the PC-3000 SAS ports
  - ▶ HDDs connected to computer ports in a standard way
  - ▶ Image-files
  - ▶ Previously created Data Extractor tasks with copying to file
  - ▶ Previously created virtual RAIDs
  - ▶ HDDs connected to the PC-3000 Express ports (if both systems are plugged into one computer)
8. **Maximum number of damaged HDDs per one task:** Four HDDs connected to the PC-3000 SAS ports
9. **Read speed of virtual RAID:** more than 1.3 GB/s, for a Stripe with 4 SSDs, connected to the PC-3000 SAS ports (it depends on the configuration and read speed of HDD)
10. **Supported virtual RAID levels:**
  - ▶ 0 (Stripe), 1 (Mirror), 1E Offset and Adjacent, JBOD, 4, 5, 5E, 5EE, 6 and 6-Adaptec
  - ▶ Various combined levels: 10, 50, 51, 60 and others (due to the possibility to use virtual RAID array as a member)
  - ▶ Software-based RAID and multi-disk storage systems: LDM and mdadm structure analysis, WSS (Windows Storage Spaces), ZFS RAID-Z, Btrfs RAID, Apple Fusion Drive (HFS+, APFS)
  - ▶ Custom configurations that are set by user with the tabular (matrix) presentation