

iNEMI Mass Data Storage Roadmap

Roger F. Hoyt

Mass data storage for digital electronic systems plays a vital role in contemporary life, providing non-volatile and rapid data access for business, government, academic, military, and consumer applications. The properties of these technologies may be illustrated in a 'Tiered Storage Hierarchy' pyramid, with the lower capacity, highest performance and most costly technologies at the top, down to the highest capacity, lowest performing, and least costly at the base.

The current roadmap of the bi-annual iNEMI Mass Storage Roadmap, like previous roadmaps beginning in 1996, includes participation and input from a broad spectrum of participants in the mass data storage industry, government, and academic organizations. It includes the status and outlook on all key mass storage technologies: Solid State, Magnetic, and Optical Storage. Solid State Storage has always provided the best performance and reliability, but at a price which has historically been too high for broad implementation. Magnetic Data Storage, consisting of Hard Disk (HDD), and Tape Drives, continues to provide the bulk of data storage requirements, playing a vital role in modern electronic data systems. For some specific applications, requiring both high capacity and portability, Optical Storage technologies can provide a viable solution.

New to this year's edition is a section on Storage Systems, which includes the status and impact of these technologies on data systems, and critical factors such as power dissipation, which may drive future systems design and implementation.



Roger F. Hoyt is currently a consultant to the information storage industry in the areas of advanced technology and manufacturing. His educational background includes a bachelor's degree in Engineering Physics from the University of Illinois/Urbana and master's and PhD degrees in Physics from the University of California/San Diego. He has held post-doctoral positions at the University of Cologne and the Ohio State University. His professional work experience includes scientific and management positions at the IBM Almaden Research Center and Storage Systems Division, and Hitachi Global Storage Technology. He has served as a member of the review panel in magnetics of the NIST Electronic and Electrical Engineering Laboratory and the Mass Data Storage committee chair of the international Electronic Manufacturing Initiative (iNEMI). He has served as secretary, program chair, and chair of the Santa Clara Valley Chapter of the IEEE Magnetics Society, publications director and director of the IEEE San Francisco Bay Area Council, society liaison, board member, and editor in chief of the IEEE Press, a member of the IEEE Magnetics Society AdCom, a member of the editorial board of the IEEE Transactions on Magnetics. He has authored many technical papers and patents in the areas of low temperature physics, magnetism, and magnetic recording. He is a member of the American Physical Society, the New York Academy of Sciences, has been elected a member of the IBM Academy of Technology, and a Fellow of the IEEE.