Tutorial on Solid State Recording Technology

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A variety of solid-state technologies for recording applications either exist, are in development, or have been conceived and researched. These technologies offer desirable recording attributes which warrant further technological study for current or future recording applications. A summary description of the technological characteristics[1,2] of selected recording technologies will be presented along with a review of the basic principles of operation, This presentation is expected to provide additional technical background on selected memory and storage technologies to crest e a context for subsequent presentations and discussions on solid-state technology, packaging, and systems applications. These technological characteristics can be used to make comparisons between selected solid-state and other memory and storage technologies. Selected technologies which will be reviewed and discussed can be categorized at least primarily as magnetic, optical, and electronic technologies. Sample recording technologies are categorized in Table 1.

Table 1: Sample list of recording technologies:

Electronic Technologies	Magnetic Technologies	Optical Technologies
Dynamic RAM	Josephson Junction	EOM
EEPROM	Magnetic Bubble	Holograpic
Ferroelectric RAM	Magnetic Core	Near-Field Scanning
Flash EEPROM	Magnetic Disk	Optical Disk
Molecular	Magnetic RAM	Optical Tape
Scanning Tunneling	Magnetic Tape	Photochemical
Single-Electron	Magnetoresistive RAM	Photon-mm
Static RAM	Magneto-Optic Disk	Raman
	Magneto-Optic Tape	Spectral Hole-Burning
	Plated Wire	Two-Photon313
	Spin Switches	
	Vertical Bloch Line	

References and Acknowledgment:
1. G. Ashton, ed. "Solid State Memory Study Mid-Term Report," NM], Technical Report 1{11-0010, National Media Laboratory, St. Paul, M N, November, 1993.

2. R. Katti and H. Stadler. "Survey of Data Storage Systems for Spaceflight Applications," Version 2.1, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, May 31, 1989.