<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>Samsung enters Flash Memory market</td>
</tr>
<tr>
<td>2000</td>
<td>M-Systems (working with IBM) and Trek Technology introduce USB flash drives</td>
</tr>
<tr>
<td>2001</td>
<td>Toshiba and SanDisk introduce 1Gb MLC NAND</td>
</tr>
<tr>
<td>2002</td>
<td>SanDisk introduces NAND product through joint venture with Toshiba</td>
</tr>
<tr>
<td>2003</td>
<td>Sony introduces the Memory Stick Micro</td>
</tr>
<tr>
<td>2004</td>
<td>Apple introduces iPod shuffle</td>
</tr>
<tr>
<td>2005</td>
<td>Intel introduces PCI Express (PCIe) x4 board</td>
</tr>
<tr>
<td>2006</td>
<td>Fusion-io announces 440 GB ioDrive NAND-based PCIe x4 board</td>
</tr>
<tr>
<td>2007</td>
<td>SanDisk introduces the iPhone</td>
</tr>
<tr>
<td>2008</td>
<td>Apple announces MacBook Air with SSD option</td>
</tr>
</tbody>
</table>

### Timeline

- **1999**: Samsung enters Flash Memory market with M-Systems (working with IBM) and Trek Technology introducing USB flash drives.
- **2000**: Toshiba and SanDisk introduce 1Gb MLC NAND.
- **2001**: Mitsubishi and Hitachi semiconductor divisions form Renesas.
- **2002**: Sony introduces the Memory Stick Micro.
- **2003**: Apple introduces iPod shuffle.
- **2004**: Intel introduces PCI Express (PCIe) x4 board.
- **2005**: Fusion-io announces 440 GB ioDrive NAND-based PCIe x4 board.
- **2006**: SanDisk introduces the iPhone.
- **2007**: Apple announces MacBook Air with SSD option.

**NOR revenues**:
- **1999**: Over $2 B
- **2000**: Over $4 B
- **2001**: Over 1 billion flash chips ship.
- **2002**: M-Systems announces 250 nm processes.
- **2003**: Over 1 billion NOR products ship.
- **2004**: NAND revenues exceed $8 B.
- **2005**: NAND revenues exceed $10 B.
- **2006**: NAND revenues exceed $10 B.
- **2007**: NAND revenues exceed $10 B.
- **2008**: NAND revenues exceed $10 B.

**NAND revenues**:
- **1999**: $4 B
- **2000**: $6 B
- **2001**: NOR revenues exceed $1B.
- **2002**: NAND revenues exceed $1B.
- **2003**: NAND revenues exceed $1B.
- **2004**: NAND revenues exceed $1B.
- **2005**: NAND revenues exceed $1B.
- **2006**: NAND revenues exceed $1B.
- **2007**: NAND revenues exceed $1B.
- **2008**: NAND revenues exceed $1B.

**SD card introduced by**
- **2000**: SanDisk, Toshiba, and Matsushita.

**Microchip packages**
- **2001**: NEC introduces multi-chip packages.

**3D software system for USB flash drives introduced by**
- **2002**: SanDisk and M-Systems.

**NAND prices drop below DRAM prices**
- **2003**: SanDisk and Motorola announce the TranFlash card.

**NAND product introduced**
- **2004**: Intel and Micron enter NAND market with IMFT joint venture.

**Flash FX Pro**
- **2005**: Datalight introduces FlashFX Pro.

**NAND product introduced**
- **2006**: Intel and Micron from IMFT joint venture.

**MLC NAND technology announced by**
- **2007**: SanDisk.

**Apple announces OneNAND 1-gigabit product**
- **2008**: SanDisk announces 4-bit MLC technology.

**NAND prices continue to drop**
- **2009**: NAND prices continue to drop as DRAM prices drop below NAND prices.

**NAND-based SSDs**
- **2009**: Several laptop SSDs introduced with up to 128 GB storage.

**SSD with a capacity of 1.6 TB**
- **2009**: Several SSDs with up to 256 GB for notebook applications.

**Ultra Mobile PC (UMPCs)**
- **2009**: Several companies announce MLC flash SSDs with up to 256 GB for notebook applications.

**Apple iPhone**
- **2009**: Apple iPhone 3G using flash memory sold 1 million units in 3 days.

**NAND technology**
- **2009**: NAND technology continues to evolve with the introduction of newer processes such as 32 nm and below.

**Flash memory market**
- **2009**: The flash memory market continues to grow, with revenues exceeding $20 B.

**NAND flash-based SSDs**
- **2009**: NAND flash-based SSDs for enterprise applications are introduced.

**Sub-$200 laptop models**
- **2009**: Several laptop models are introduced with SSD options for under $200.

**Applications for server SSDs**
- **2009**: Applications for server SSDs are introduced, leveraging the high-endurance characteristics of NAND flash memory.

**Fusion-io**
- **2009**: Fusion-io introduces Fusion ioDrive, an SSD storage solution for enterprise applications.

**EMC**
- **2009**: EMC introduces high-endurance flash memory for server SSD applications.

**Microsoft**
- **2009**: Microsoft introduces a new SSD option for several laptop models.

**Apple**
- **2009**: Apple introduces the MacBook Air with SSD option.

**SanDisk**
- **2009**: SanDisk introduces Fusion ioDrive, an SSD storage solution for enterprise applications.

**Numonyx**
- **2009**: Numonyx launches 2.5" SSD with SATA II interface.

**Fusion-io**
- **2009**: Fusion-io announces 440 GB ioDrive NAND-based PCIe x4 board.

**Bitmicro**
- **2009**: Bitmicro introduces 3.5" SSD with a capacity of 1.6 TB.

**Intel**
- **2009**: Intel introduces PCI Express (PCIe) x4 board.

**SanDisk**
- **2009**: SanDisk introduces the iPhone.

**Apple**
- **2009**: Apple announces MacBook Air with SSD option.

**Samsung**
- **2009**: Samsung announces 150 GB (MLC-based) 2.5" SSD with SATA II interface.

**Ultra Mobile PCs**
- **2009**: Several companies announce MLC flash SSDs with up to 256 GB for notebook applications.

**Apple iPhone**
- **2009**: Apple iPhone 3G using flash memory sold 1 million units in 3 days.