New Generation SD 3.00 Overview
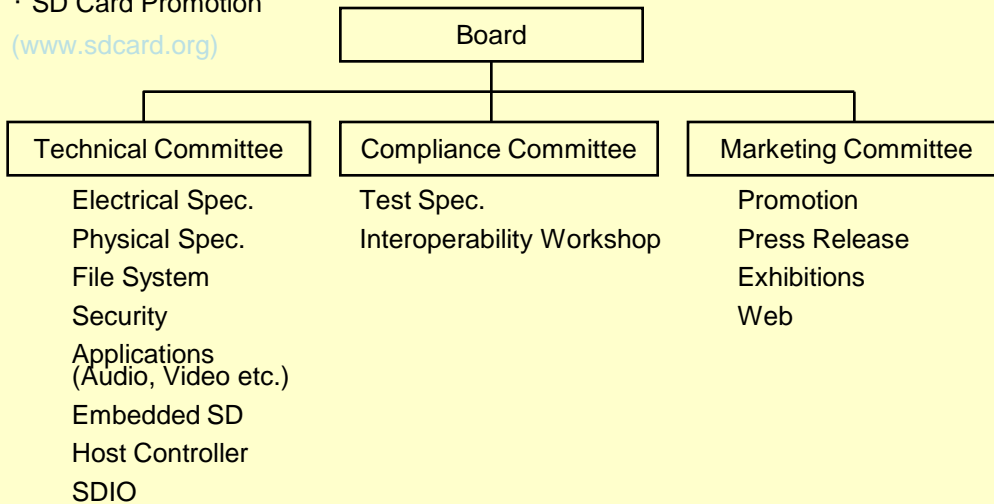
SD Card Association

July 2009

SD Snapshot

- SD is the world-leading, de facto standard for removable memory cards
- SD specification is in 78 percent of slotted mobile phones (iSuppli)
- SDA sets industry standards and promotes SD product acceptance
- SDA has 1,100+ member companies

SD Association and SD Card Standards

SD Association (SDA)

· SD Card Standardization

· SD Card Promotion

(www.sdcard.org)

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                    │    Board    │
                    └─────────────┘
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Technical Committee	Compliance Committee	Marketing Committee
Electrical Spec.	Test Spec.	Promotion
Physical Spec.	Interoperability Workshop	Press Release
File System		Exhibitions
Security		Web
Applications (Audio, Video etc.)		
Embedded SD		
Host Controller		
SDIO		

• Established in January 2000
• Over 1,100 member companies
• No. 1 share in small form factor memory cards
• Membership fee・・・ $4,500/year for Executive Member,
                    $2,000/year for General Member

SD-3C, LLC

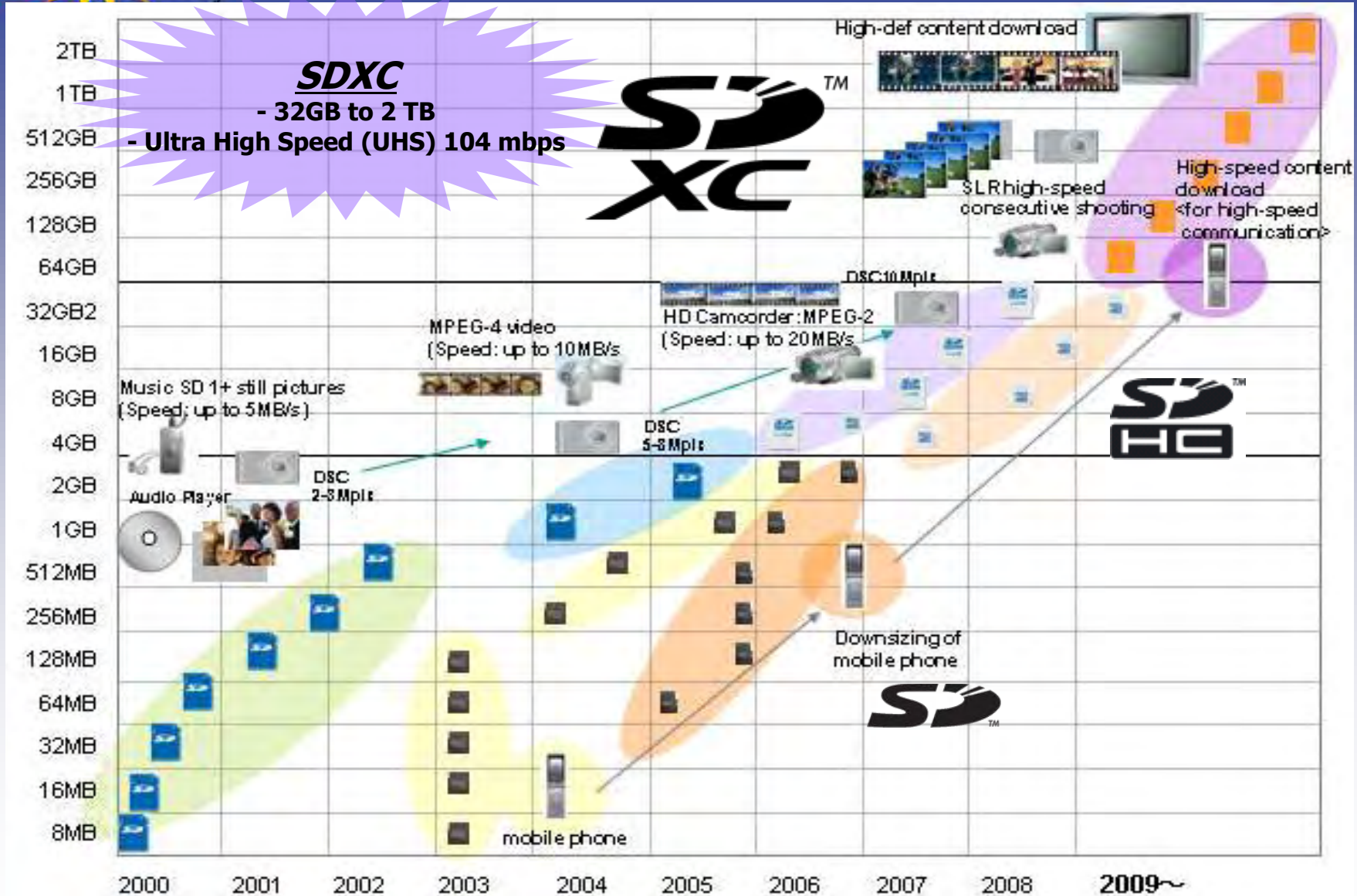· License entity for SD Card and SD Host/Ancillary products

(www.sd-3c.com)

4C Entity
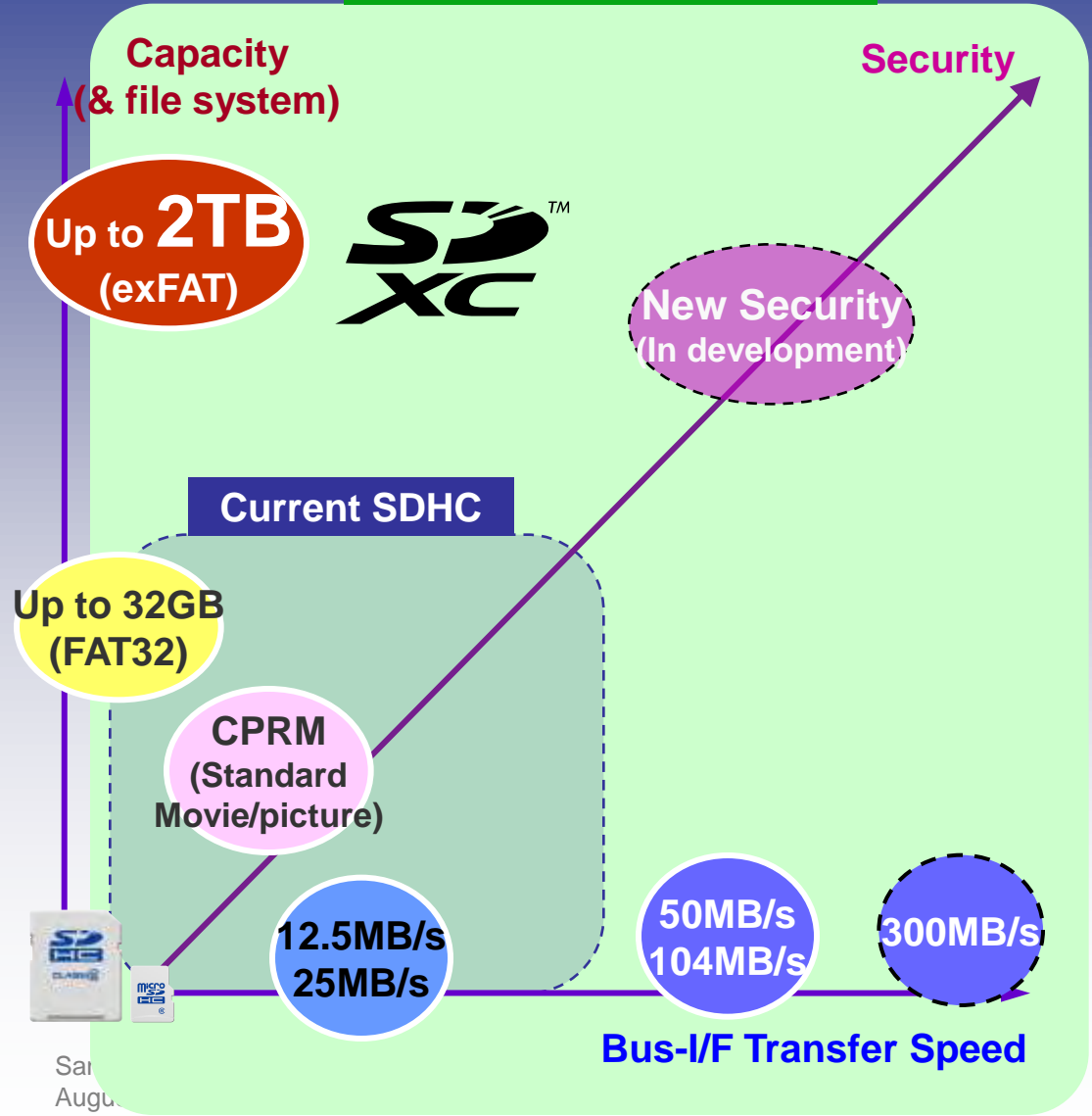
· License entity for security (CPRM)
(www.4centity.com)

Capacity	SD	miniSD	microSD
to 2GB			
Over 2GB-32GB			
Over 32GB-2TB		N/A	

SDXC
- 32GB to 2 TB
- Ultra High Speed (UHS) 104 mbps

Next Generation SD Card Roadmap

Next Generation SD

Capacity (& file system)

Security

Up to 2TB (exFAT)

SD**XC**™

New Security (In development)

Current SDHC

Up to 32GB (FAT32)

CPRM (Standard Movie/picture)

12.5MB/s 25MB/s

50MB/s 104MB/s

300MB/s

Bus-I/F Transfer Speed

Larger Capacity

- 32GB $<$ SDXC $\leqq$ 2TB
- exFAT as its standard file system
  (enables to store data size more than 4GB)
- SDXC (Extended Capacity)

Faster Speed Performance

- Faster Bus interface speed
  - 50MB/s to 104MB/s for 1st phase (UHS-1)
  - 300MB/s is final target (UHS-2) with LVDS

SDXC Market Opportunities

- **HD Content – Easy Portability**
  - Store HD content directly on SDXC memory card
  - Play HD content with car entertainment system, game console, AV viewer or television
  - Download content to SDXC from kiosk at train station/airport
- **HD Camcorders/Digital Cameras – Faster Speed**
  - Shoot professional quality video with compact consumer recorders
  - HD high-speed consecutive shooting with digital cameras (6fps to 60fps)
- **Mobile Phones – More Capacity**
  - Use a variety of content from difference sources
  - A microSDXC card will store large quantities of data and applications on handset
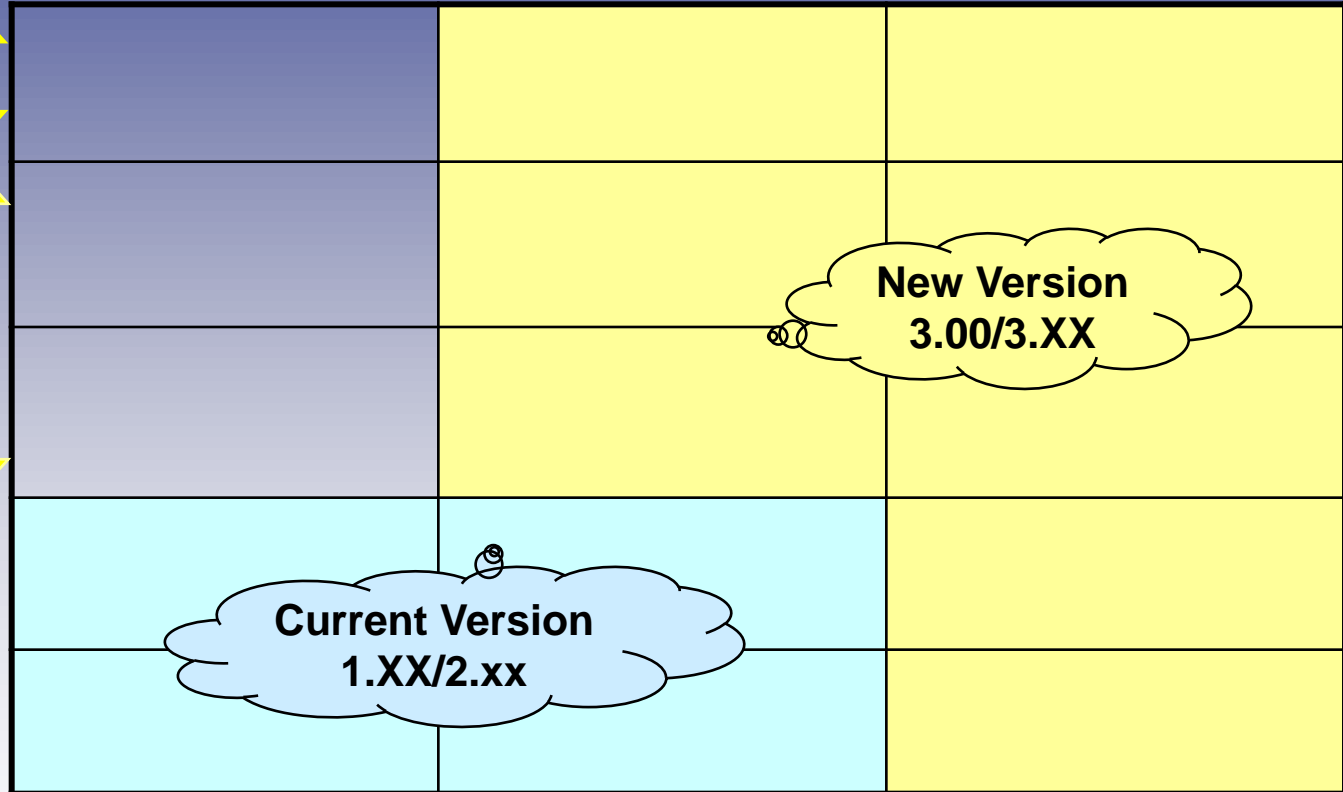
SD Card Capacity and Bus Speed

❑ **Logo marks for SD 3.0 cards greater then 32GB up to 2TB**
❑ **Uses exFAT file system**
❑ **Full definition to be published in Logo Guidelines, Version 3.0**

Compatibility

❑ **SDXC host devices fully backward compatible with SD/SDHC memory cards**

❑ **SDXC memory cards will work only with SDXC (exFAT) hosts**

SD/SDHC/SDXC Hosts and Cards Interoperability

SD Host

File System

FAT12/16

FAT32
FAT12/16

exFAT
FAT32
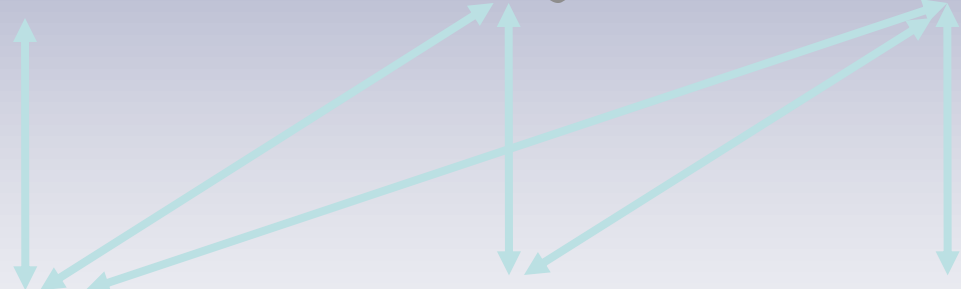**FAT12/16**

SD Card

File Format

FAT12/16

FAT32

exFAT

- **Up to 2TB capacity**
  - 100 HD movies
  - 480 hours HD recording
  - 136,000 fine-mode photos
- **Read/write speeds from 50MB/s to 104MB/s this year (UHS-1)**
- **Road map to 300MB/s (UHS-2)**
- **Expected memory card sizes SDXC, microSDXC**