New VESA Features and Application

Jay Lin
Technical Manager
Multimedia Group
2017.6.22
Our Role in the Industry

- Mask Houses
- Foundries
- Assembly Houses

IC Data → wafers → IC Packages

ICs → ODM Customers → ICs
ICs → Brand Customers → ICs

Design, Test, and Distribute ICs

User
Communications Network ICs

- NIC: NIC PHY, Automotive Ethernet
- Switch Controllers/Gateway Controllers
- Broadband: ADSL2+/VDSL/G.fast, XPON SoC
- Wi-Fi/Bluetooth/IoT Solution
- Digital Home Center: OTT, NAS, STB

Multimedia ICs

- LCD Monitor Controllers
- Translators
- LCD TV Controllers

Computer Peripheral ICs

- USB Type-C Controllers
- USB HUB Controllers
- PC High Definition Audio Codecs
- Class-D Amplifier
- Consumer Audio Codecs
- Card Reader Controllers
- Web Camera Controllers
- SSD Controllers
Exciting New Features

**VESPA Spec Evolution**

**Higher Speed**
- HBR3
  - 8.1GHz/ Lane
  - 5K60 one cable

**More Capacity**
- DSC 1.2a
  - Visually Lossless
  - 3:1 compression
  - 8K60 one cable

**Better Connectivity**
- DP Alt-Mode over USB Type-C

**Better Performance**
- HDR Framework
- FEC
- MST Policy
- New Audio Transport
# DP Version Evolution

<table>
<thead>
<tr>
<th>DP 1.1</th>
<th>DP 1.2</th>
<th>DP 1.3</th>
<th>DP 1.4</th>
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<tr>
<td>HBR – 2.7G</td>
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<td><strong>FHD 144Hz Gaming</strong></td>
<td><strong>4K 60Hz Deep Color</strong></td>
<td><strong>4K 120Hz Gaming 4K 60Hz Multi-Stream</strong></td>
<td><strong>8K 60Hz HDR Video</strong></td>
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<td>HBR2 – 5.4G</td>
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<td>HBR3 – 8.1G</td>
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- **SDR**: Traditional color reproduction
- **HDR**: High Dynamic Range for enhanced color and contrast

**Example Diagram**:

- [4K Display]
- [4K Display]
- SDR
- HDR
DP Alt-Mode Use Cases

- **Merits of DP over USB-C**
  - Audio/Video
  - Full duplex data transmission
  - Bi-directional power
HID Devices

USB Type-C

DP/HDMI

Power Charging
### Why DP Alt-Mode

- Most commonly adopted alt-mode
- Scalable in nature
- Guaranteed compatibility

#### HDMI 1.4

**Pros:**
- Widely adopted

**Cons:**
- 4K30
- No Data
- Market Confusion

#### MHL

**Pros:**
- Existing MHL devices

**Cons:**
- Compatibility
- Low adoption rate

#### TBT3

**Pros:**
- 40Gbps data
- DP Alt-mode
- Graphic dock

**Cons:**
- Expensive
- Worldwide 1st certified HBR3 sink
- HBR3 reference sink
- DP alt-mode protocol converter
DP alt-mode scalar

- MUX
- CC PD 3.0
- Retimer
- BillBoard
- Video Block
- USB 2.0
- USB 3.1 Gen 1
- HBR2
- eDP HBR
- USB 3.1 DFP
- USB 3.1 DFP
- USB 3.1 DFP