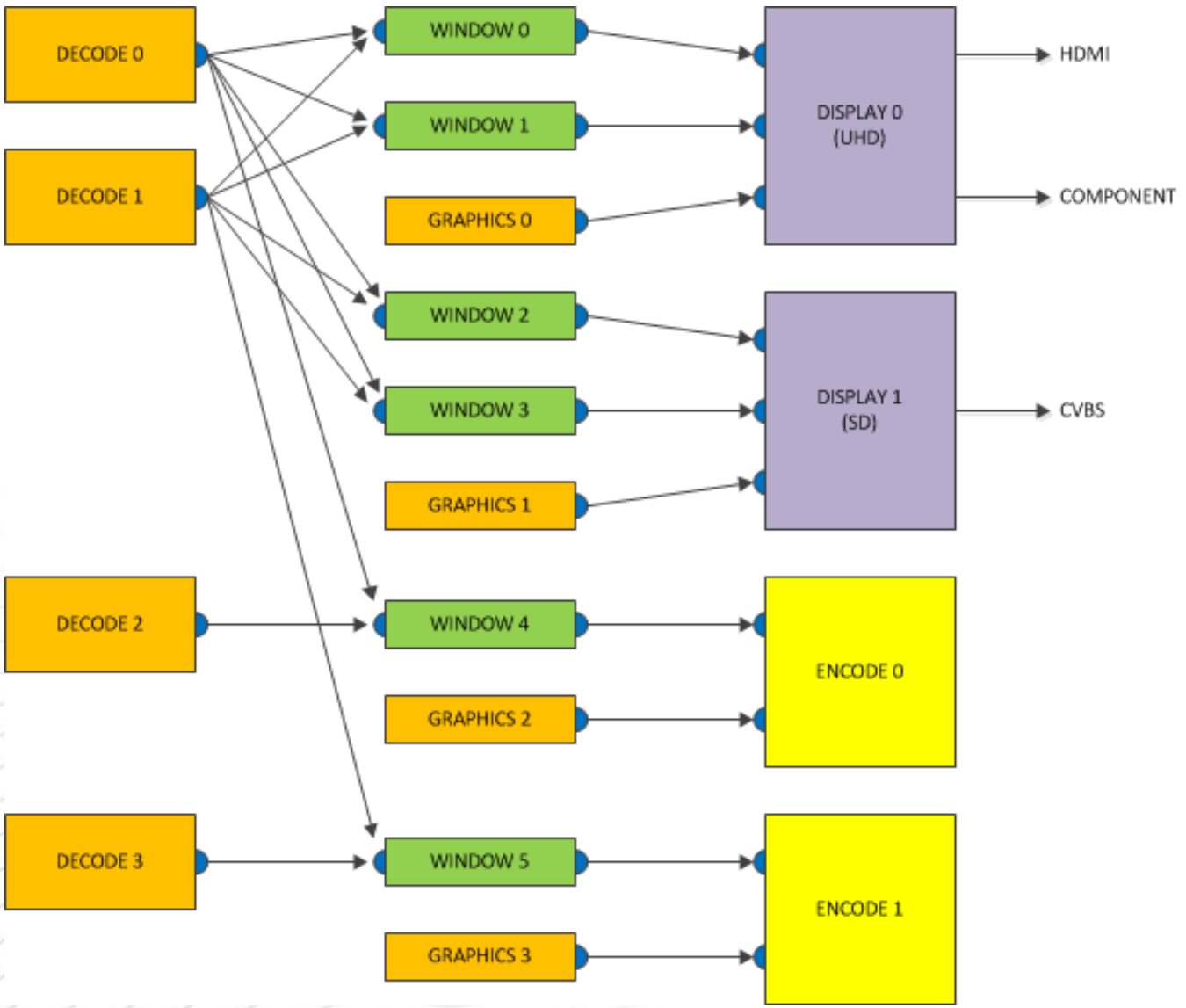
# BOX MODE #2


7439 Bx

# BOX MODE #2 – SUMMARY

- **Required memory speed:  2x 32-bit DDR3-2133**
- **Features**
  - Single source mode:
    - 3840x2160p60 10-bit HEVC
    - 3840x2160p60 8-bit VP9
    - 1920x1080p60 8-bit AVC
  - MAIN + PIP mode:
    - 1920x1080p30 / 60i 8-bit HEVC / VP9 / AVC
  - UHD + SD
  - Two transcodes
    - 1920x1080p30 / 60i 8-bit HEVC / VP9 / AVC source
    - 720p60 8-bit AVC encode
    - 720p60 32-bit ARGB graphics
  - No multi-PIP

# POSSIBLE VIDEO ROUTINGS



# SOURCE LIMITATIONS

- **For each source, you may toggle between any of the provided options.**
  - Only one option enabled at a given time.
- **Decode 0**
  - Single source mode:
    - 3840x2160p60 10-bit HEVC
    - 3840x2160p60 8-bit VP9
    - 1920x1080p60 8-bit AVC
  - MAIN + PIP mode:
    - 1920x1080p30 / 60i 8-bit HEVC / VP9 / AVC
- **Decode 1**
  - Must be inactive in single-source mode
  - MAIN + PIP mode:
    - 1920x1080p30 / 60i 8-bit HEVC / VP9 / AVC
- **Decode 2 (Transcode)**
  - 1920x1080p30 / 60i 8-bit HEVC / VP9 / AVC
- **Decode 3 (Transcode)**
  - 1920x1080p30 / 60i 8-bit HEVC / VP9 / AVC
- **Graphics 0 (UHD)**
  - 1080p60 32-bit ARGB
- **Graphics 1 (SD)**
  - 480p60 32-bit ARGB
- **Graphics 2 (Transcode)**
  - 1280x720p60 32-bit ARGB
- **Graphics 3 (Transcode)**
  - 1280x720p60 32-bit ARGB

# HARDWARE RESOURCE MAPPING

| Decoder | MFD | Usage | Hardware |
|---|---|---|---|
| Decode 0 | MFD0 | Single source mode<br>MAIN + PIP mode (MAIN or PIP) | HVD0 |
| Decode 1 | MFD1 | MAIN + PIP mode (PIP or MAIN) | HVD0 |
| Decode 2 | MFD2 | Transcode 0 | HVD1 |
| Decode 3 | MFD3 | Transcode 1 | HVD1 |

# WINDOW LIMITATIONS

- **Window 0 (MAIN / UHD)**
  - Up to full-screen display (smooth scaling)
  - 10-bit support / 1080i60 10-bit de-interlacing
- **Window 1 (PIP / UHD)**
  - Must be inactive in single-source mode
  - MAIN + PIP mode:
    - Up to ½ x ½ screen display
    - 1080i60 8-bit de-interlacing
- **Window 2 (MAIN / SD)**
  - Up to full-screen display (smooth scaling)
- **Window 3 (PIP / SD)**
  - Must be inactive in single-source mode
  - MAIN + PIP mode:
    - Up to ½ x ½ screen display
- **Window 4 (Transcode)**
  - Full-screen display
  - 1080i60 8-bit de-interlacing
- **Window 5 (Transcode)**
  - Full-screen display
  - 1080i60 8-bit de-interlacing

# DISPLAY AND ENCODE LIMITATIONS

- **Display 0 (HD)**
  - 3840x2160p60 12-bit 4:2:0 (HDMI)
  - 3840x2160p60 12-bit 4:2:2 (HDMI)
  - 3840x2160p60 8-bit 4:4:4 (HDMI)
  - 1920x1080p60 (component)
  - Only one display format at a time
    - If you want 1080p60 component, HDMI also needs to be 1080p60.
- **Display 1 (SD)**
  - 480i60 (CVBS)
  - 576i50 (CVBS)

- **Encode 0**
  - 720p60 8-bit AVC
- **Encode 1**
  - 720p60 8-bit AVC