

# SMPTE-352 Link Number

The SMPTE-352 Link Number refers to a value present in the SDI output of a 4K UHD quad 3G-SDI output. There are four outputs, and each of these outputs can have an associated **link number** so that the connected device (our AVP HEVC Encoder in this case) can work out what 3G-SDI has been connected to which spigot on the HEVC Card.

If the SMPTE-352 Link Numbers are present (and this only seems to be available in 2SI mode, not in square division (quad) mode) then the AVP can correctly de-interleave the content regardless of the order that the inputs were presented.

## Show Link Number AVP

You can view the link numbers (if present) by connecting to the AVP host card via SSH:

```
SSH <jpaddress>
login:
root
viper
```

Once logged in, telnet to the card in the correct slot (slot 1 to 6) in the case of the HEVC card it's normally slot 1 (if it's a single card)

```
telnet slot1
login:
root
(no password)
```

Now enter the command **RepConsole**

```
RepConsole, you will now see the prompt change to REP>
```

To see the SMPTE-352 Link Numbers, enter the following command:

```
video status
The output will be similar to the following:
SDI input 0 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 0)
SDI input 1 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 1)
SDI input 2 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 2)
SDI input 3 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 3)
UHD input remapping: none
Video set to 2160p (interleaved format) at 59.94 frames/s
Video source is SDI (video locked)
Action on video loss is freeze frame without ident text
Front panel video monitor source is output 0 to NARA
```

We can see in the above example that the SMPTE-352 link numbers are 0-0, 1-1, 2-2 and 3-3, so they are in the correct order. For this reason the line **UHD input remapping** is set to **none**, as no remapping is required.

In the next example, the 3G-SDI inputs have been connected in an incorrect order:

```
SDI input 0 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 0)
SDI input 1 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 1)
SDI input 2 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 3)
SDI input 3 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 2)
UHD input remapping: SDI 0 -> UHD 0, SDI 1 -> UHD 1, SDI 2 -> UHD 3, SDI 3 -> UHD 2
Video set to 2160p (interleaved format) at 59.94 frames/s
Video source is SDI (video locked)
Action on video loss is freeze frame without ident text
Front panel video monitor source is output 0 to NARA
```

Here we can see that the SMPTE-352 order is 0,1,3,2. So the last two inputs are swapped. Although the AVP HEVC card can cope with this, and the encode will look fine (because the SMPTE-352 link numbers are present) we can see that the **UHD input remapping** is now reporting **SDI 0 → UHD 0, SDI 1 → UHD 1, SDI 2 → UHD 3, SDI 3 → UHD 2** to let us know that the AVP is dealing with a mis-plugged input.

I tested this in Quad mode (the AJA Ki Pro allows you to select either Square or 2SI output) and got the following:

```
SDI input 0 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 0)
SDI input 1 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 0)
SDI input 2 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 0)
SDI input 3 locked to 1080p at 59.94 frames/s (SMPTE-352 link number 0)
UHD input remapping: none
Video set to 2160p (interleaved format) at 59.94 frames/s
Video source is SDI (video locked)
Action on video loss is freeze frame without ident text
Front panel video monitor source is output 0 to NARA
```

Here we can see that there are no SMPTE-352 Link numbers present, so perhaps SMPTE-352 Link numbers are only part of the interleaved specification.

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