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Nintendo GameCube Digital AV Connector

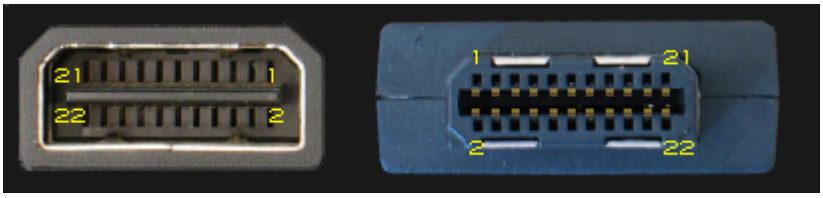
The DigitalAV connector carries digital sound and digital component video. Neither signal is useful by itself; the Nintendo component cable converts the digital to analogue component, and a chip is required to convert the digital audio to a usable format (TOSlink, etc). Special thanks to **Oscar** for this information.

There are other pages detailing the GameCube RGB + VGA and Digital Audio mods on this wiki.

Caveats

- Most GameCubes have the digital connector, however to reduce costs Nintendo removed the port from newer systems. In times past Nintendo would exchange your console for one with the digital connector port on request. As of August 2006, they no longer offer this service .They instead offer assistance finding a used console with the appropriate port.
- The GameCube is capable of creating a progressive signal, however the software must support it. No PAL software utilizes the progressive capability of the hardware (so no VGA either).

The Connector



GameCube Digital Connector			
Pin	**Signal**	**Pin**	**Signal**
1	DetectCable (pull high 1.8V)	2	54MHz Clock
3	ClkSelect(CP10)	4	GND
5	+12V	6	27MHz Clock
7	VDATA0 (CP09)	8	GND
9	VDATA1 (CP08)	10	VDATA2 (CP07)
11	GND	12	VDATA3 (CP06)
13	VDATA4 (CP04)	14	GND
15	VDATA5 (CP03)	16	VDATA6 (CP02)
17	+3.3V	18	VDATA7 (CP01)
19	LRCK (Audio)	20	GND
21	Data (Audio)	22	BCLK (Audio)
Note: (CPxx) = Chip Pin #			

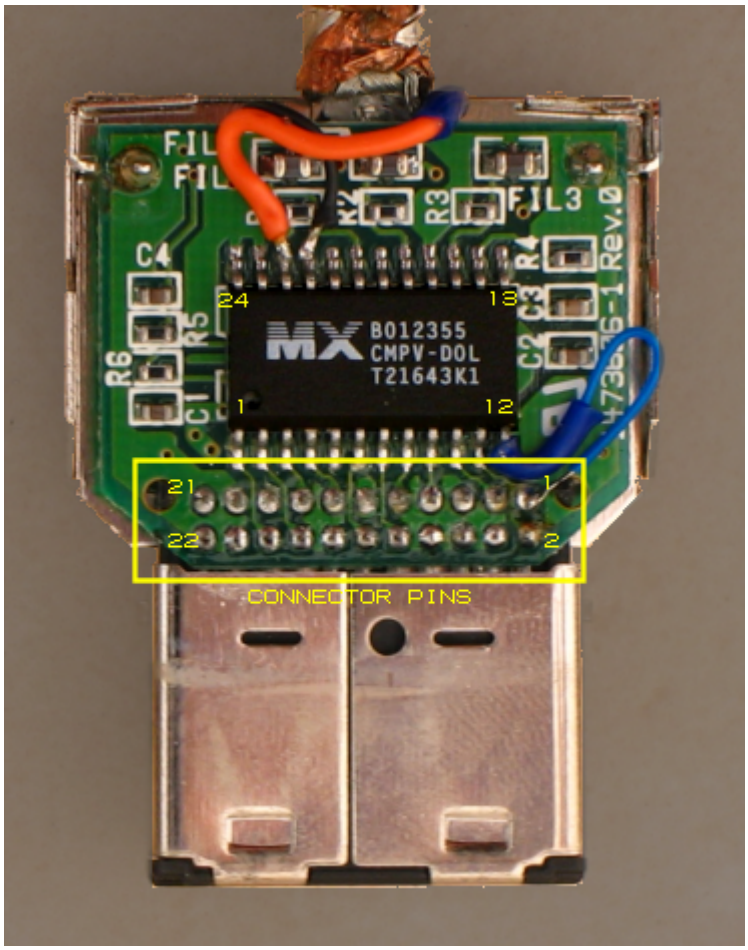
Video is sent as 4:2:2 YCrCb component. <Y><Cr><Y><Cb><Y><Cr><Y><Cb>
Y is set to 0 during blanking intervals, and Cr/Cb packets are used to transmit sync and flag information.

The Flags

Flags			
Bit	**Flag**	**Description**	**Options**
0	**I**	**Interlaced Flag**	**0 = Interlaced, 1 = Non-Interlaced**
1	**M**	**Screen Mode Flag**	**0 = NTSC, 1 = PAL**
2	**K**	**Color Burst Blanking Flag**	**0 = Color Burst Should be Blanked Out**
3	**B**	**Color Burst Flag**	**0 = Indicates location of Color Burst**
4	**H**	**Horizontal Sync**	**0 = Horizontal Sync Active**
5	**V**	**Vertical Sync**	**0 = Verical Sync Active**
6	**F**	**Field**	**0 = Odd Field, 1 = Even Field**
7	**C**	**Composite Sync**	**0 = Composite Sync Active**
Note: Odd fields start Y:Cb Even fields start Y:Cr			

The CMPV-DOL Chip

This is the chip used in the official Nintendo component cables. It's manufactured by Macronix, but is an ASIC (application-specific IC) made exclusively for Nintendo and neither company, as of February 2008, will divulge its secrets. The image below shows a cable with the RGB mod applied, hence the RGB select wire on pin 12, and the H/V Sync on pins 21 + 22.



Macronix CMPV-DOL Pinout			
Pin	**Signal**	**Pin**	**Signal**
1	VDATA7	2	VDATA6
3	VDATA5	4	VDATA4
5	3.3V	6	VDATA3
7	VDATA2	8	VDATA1
9	VDATA0	10	ClkSelect
11	54MHz Clock	12	GND
13	*	14	*
15	RED/Pr	16	GND
17	BLUE/Pb	18	3.3V
19	GREEN/Y	20	SENS
21	H-Sync	22	V-Sync
23	GND	24	GND
*1.2V Compensation or Filter??			