



## USING BROADCASTING EQUIPMENT FOR INTERACTIVE MEDIA DESIGN

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Today's interactive media, requires sophisticated processes. These processes require high quality video and audio material to render into a high quality output.

There are many ways and type of equipment in which you can generate video and audio. Computer generated materials may require importing into the authoring suit but the quality of this kind of material will be good enough for satisfactory results. However this might not be the case for captured material. This is because there many types of camcoders and vtr's working in many types of formats and the way we capture them onto our hard disk drives. If we are after quality, we know, we have to use quality products to record our material. This quality of course comes in different shapes and sizes according to our budget.

If we are after quality for video and audio it is not always enough to use a pro-camcorder or a vtr. It is also important to decide, what type of connection to be used for the transfer of the material onto your system, in this case hard disk drive. There different types of I/O cards available in the market with variable prices. So which one to use? The most expensive?

Since we are approaching this problem at a professional level, price is not really our concern for selecting the right capture card. However we are interested about the technical specs of the products i.e. connection types, sampling rates, ADC (Analogue to Digital Converter) and DSP (Digital Signal Processor) bit resolutions. All of these aspects will effect our picture and audio quality within the digital domain.

Please note, I do assume, you are using a professional camcorder with at least 700 TV lines of resolution and 4:2:0 for PAL and 4:1:1 for NTSC

sampling rates. Providing we have the specified minima, we can worry about the hardware involved for the transfer and its connection types.

There are many types of DV based camcoders around. Throughout my experience of selling broadcast products, I have seen many customers thinking that any camcorder with a DV I/O port has satisfactory qualities. However, this is not true. DV transfer, in other words, IEEE 1384, does not improve or process signals since it only acts as a transport nor decides the quality of the signal going through it. Quality, camcorder wise, is derived from the camera head. How many CCDs are there? What type and size these CCDs are, DSP bit resolution and color matrix capabilities are the defining factors of quality within a camcorder.

Again, providing you have a camcorder with 700 TVL resolution, 12 bit DSP and 3 x 1/2" CCD, you will end up with a considerable amount of picture data which will be near broadcast standard as far as the picture quality is concerned. So how should we transfer our material? Now you have 2 choices of camcoders,

1. Camcorder (VTR)
2. Camcorder (Harddisk Drive + VTR)

Lets assume for this example, you do not have the HDD option on your camera and recorded onto tape. We may use the DV out feature of our camera but do you think it will be best to do so?

Do you think, "any" digital form of transfer is better than any "analogue" connection? How about having a DV VTR with a Analogue Component Out feature? For starters, DV is not a broadcast type of connection. It is initially designed for the consumer market, therefore it has some disadvantages. It has a very weak connector design compared to BNC type connector which in turn can get damaged quite easily. But this shall not be our concern.

When you are to transfer video and audio, you should either use an analogue component or SDI connection. I do accept capture cards that provide these services are costly but in at the end of the day,

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"many is well spent". Analogue Component is the best type of connection and provides the best signal quality from an analogue machine and likewise SDI/Component Digital is the same for digital domains providing you have been recording @ 4:2:2, 50Mbps.

For your interactive media work, when material is needed from an outside source, please consider the way you capture and the equipment used as I briefly tried to explain above with minimum amount of technical terms and maths.

Quality is the key word of our era. Any work relating to generating pictures and audio has to have some standard level of quality to be able to be sold or even viewed. DVB has proved everyone that, the quality we have at our studio production facilities may well be transmitted and viewed at the same quality anywhere within the coverage or footprint of that very satellite.

So, your audience will be sensitive to the quality of your work but not only the content. Therefore pay attention to the equipment you use to record and capture moving picture. In addition to this, try to use the most professional I/O you can to achieve best result after the transfer. DV is popular and is good enough if you do not apply too much compression to it. As in MPEG 2 compression algorithms, you have table of different compression levels and equivalent qualities. My suggestion would be to use MPEG 2 ML@MP (Main Level @ Main Profile).

Becoming a videographer and interactive media designer unfortunately not only requires artistic skills but it certainly also requires minimum of "technician" level knowledge of the video and audio systems that are in use. In my opinion, and in the future, we will not only have artists but, "technician-artists" or in other words "technical-artists" where the quality of their work will be appreciated by large number of audiences.

Please bear in mind, within the last decade, many types of different arts have been applied by the help of computers and people who already knew or learned how to use them. Imagine "tomorrow"!