DDC AVB/TSN IP CORES

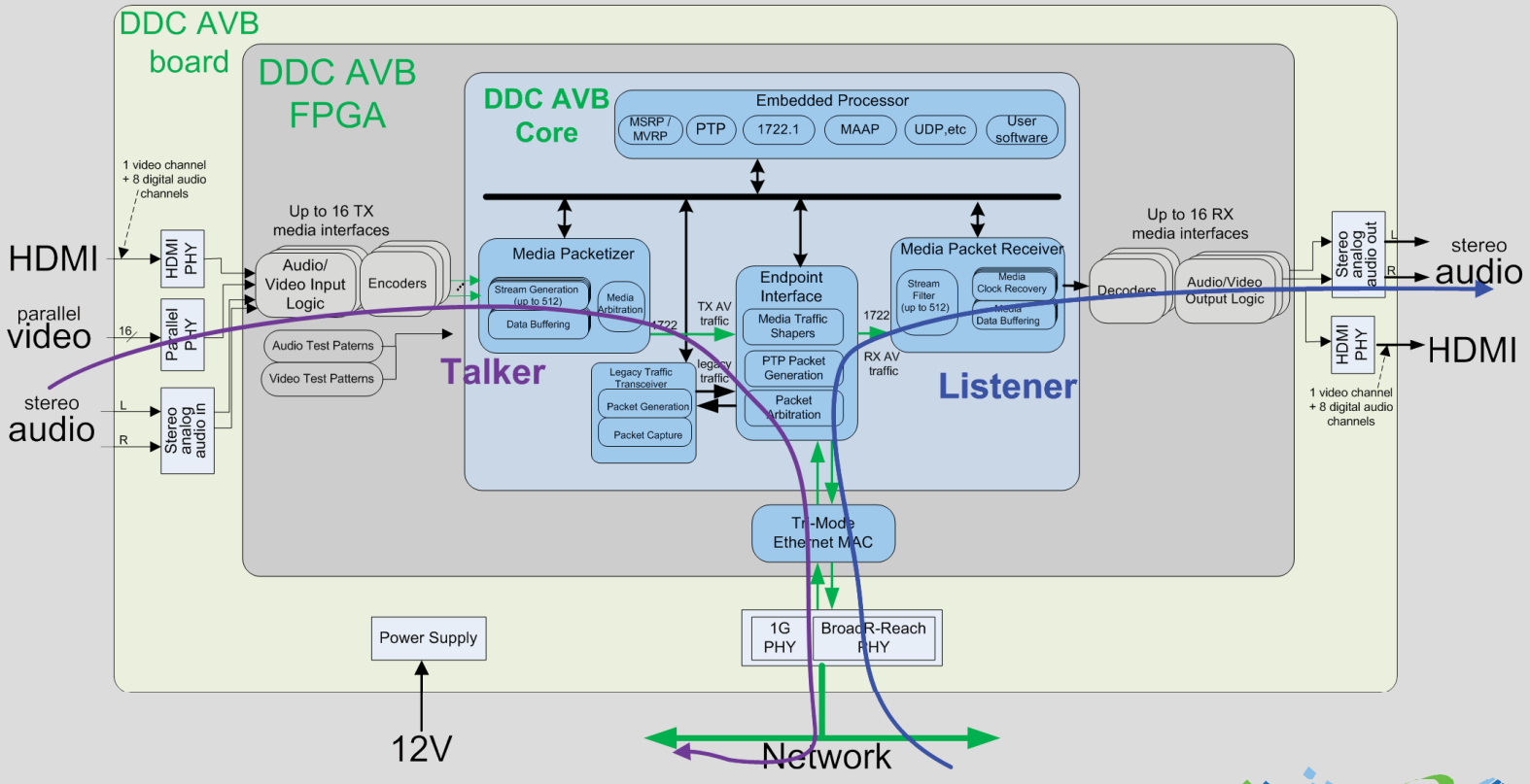
Using AVB (Audio Video Bridging), make any camera into a network camera, any display into a network display, any microphone into a network microphone, any speaker into a network speaker. Or do all at once in the same system, with everything syncronized, with high QoS (quality of service) and with Time Sensitive Networking (TSN). Have your devices plug-and-play.

Applications

- Multi-channel Pro Audio
- Multi-channel Pro Video
- Automotive driver-assist
- Automotive in-cabin entertainment
- Military aircraft, ground vehicle and aircraft video/ audio distribution
- Anywhere TSN (Time Sensitive Networking) is needed

General Information

DDC AVB IP, based on man-years of sophisticated engineering effort, allows clients to move rapidly into AVnu Certification and speed time to market with cutting edge products. DDC IP cores provide all the fundamental operations of AVB, in compliance with IEEE standards. This includes: stream reservation, audio and video synchronization, low latency and 1722.1 features. With these capabilities, clients can offer products that use standard Ethernet cabling, afford simplified installation, allow GUI level control over connections, and enable interoperation with other AVnu certified products (interoperability system testing and support may be required).



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AVB TSN

Details

Featuring

- Full Talker support
- Full Listener support
- Media Clock Recovery
- Simultaneous Talker/Listener
- 802.1 Qat
- 802.1AS
- 802.1Qav
- Precision Time Protocol (PTP)
- Stream based credit shaper
- Port based credit shaper/arbiter
- Packet filtering
- Encapsulation
- Legacy (TCP/IP, UDP, FTP, HTTP, etc.)
- 1722, 1722.1
- MAAP
- Multiple Stream Registration Protocol (MSRP)
- Multiple VLAN Registration Protocol (MVRP)
- Up to 90 streams of uncompressed 48kHz stereo audio per network port
- Low latency: Class A traffic is 2ms for 6

Services Offered

DDC can provide audio and/or video solutions, in the following forms:

- IP-only, with documentation and support
- Turn-key chip (FPGA and software)
- Turn-key DDC small AVB board
- Turn-key *custom* board tuned for your needs (including turn-key chip). We have full proto and production services.
- Certification assistance

Why FPGA?

FPGA (Field Programmable Gate Array) based AVB solutions have many distinct advantages over other solutions.

	ASIC / Standard Chip	Processor	FPGA
Highest integration / smallest footprint	✓ 1		✓
Low latency	✓		✓
Low cost (in quantity)	✓	✓	✓
In field upgradability [3]		✓	✓
Extensible software support, for new features, protocols [6] **or codecs** [3]		✓	✓
Ease of implementation of extensibility		✓	✓
Extensible numbers of channels	✓ 8		✓
Extensible hardware acceleration	✓	✓	✓
Robust Audio support	✓		✓
Robust Video support		✓ 7	✓
Extensible codecs [3]		✓ 2	✓ 5
Add other image or audio process-ing [3,4]		✓	✓
Obsolescence protection			✓ 5

1 Integration can be high if designed up front
2 Limited due to lack of hardware acceleration and processor performance
3 A very important feature any time video and audio are involved
4 Not the same as in-field upgradability, as the performance of hardware acceleration is far superior
5 Significant for FPGAs since comes in more than 1 form. The FPGAs themselves have long lives, but each FPGA "socket" can generally be swapped with similar pin-compatible devices without a board respin. Additionally, HDL allows the technology to be easily ported to any other suitably-sized FPGA.
6 Common in networking
7 Really depends on the capabilities of the processor and what load it can handle with new codecs and whether they are needed instead of other codecs, or in addition to other codecs
8 Might already have high numbers built in, but generally not extensible

DDC AVB is highly customizable and is designed to support large scale, advanced AVB networks within subnets. DDC IP can support both audio and video. The IP implements 802.1AS, 802.1Qat, 8021Qav and 1722, which respectively define precise timing/ synchronization protocol (PTP), media stream reservation protocol (MSRP), forwarding and queuing for time-sensitive media streams, and transport protocol for media streams.

DESIGNED AND MADE IN THE USA

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