

GS Coolink Microelectronics



2022.01.27

GSV Roadmap Update

For Reference

www.gscoolink.com

GSV 产品线列表

超高清桥接芯片

- 超高清桥接
 - DP 转 HDMI 芯片
 - HDMI 转 LVDS 芯片



超高清延长器芯片

- 长距离传输编解码
 - ✓ HDMI/DP to 网线
 - ✓ HDMI/DP to 光纤
 - ✓ UHD Over Ethernet



超高清路由器芯片

- 音视频切换矩阵，路由器
 - ✓ HDMI Repeater/Matrix
 - ✓ HDMI Switch/Splitter
 - ✓ 画面分割器，多画面处理



GSV Product Roadmap (2022~2023)

HDMI Processor

GSV9008
HDMI2.0
Processor

GSV9009
HDMI2.1
Processor

HDMI Splitter/Switch

GSV670X
HDMI2.1
Switch/Repeater

GSV650X
Splitter

GSV6708
HDMI2.1 4to2
CrossSwitch OSD

HDMI Converter

GSV620X
1.4 DP to HDMI2.1
Converter

GSV610X
HDMI2.0/2.1
MIPI Converter

2022_Q1

2022_Q3

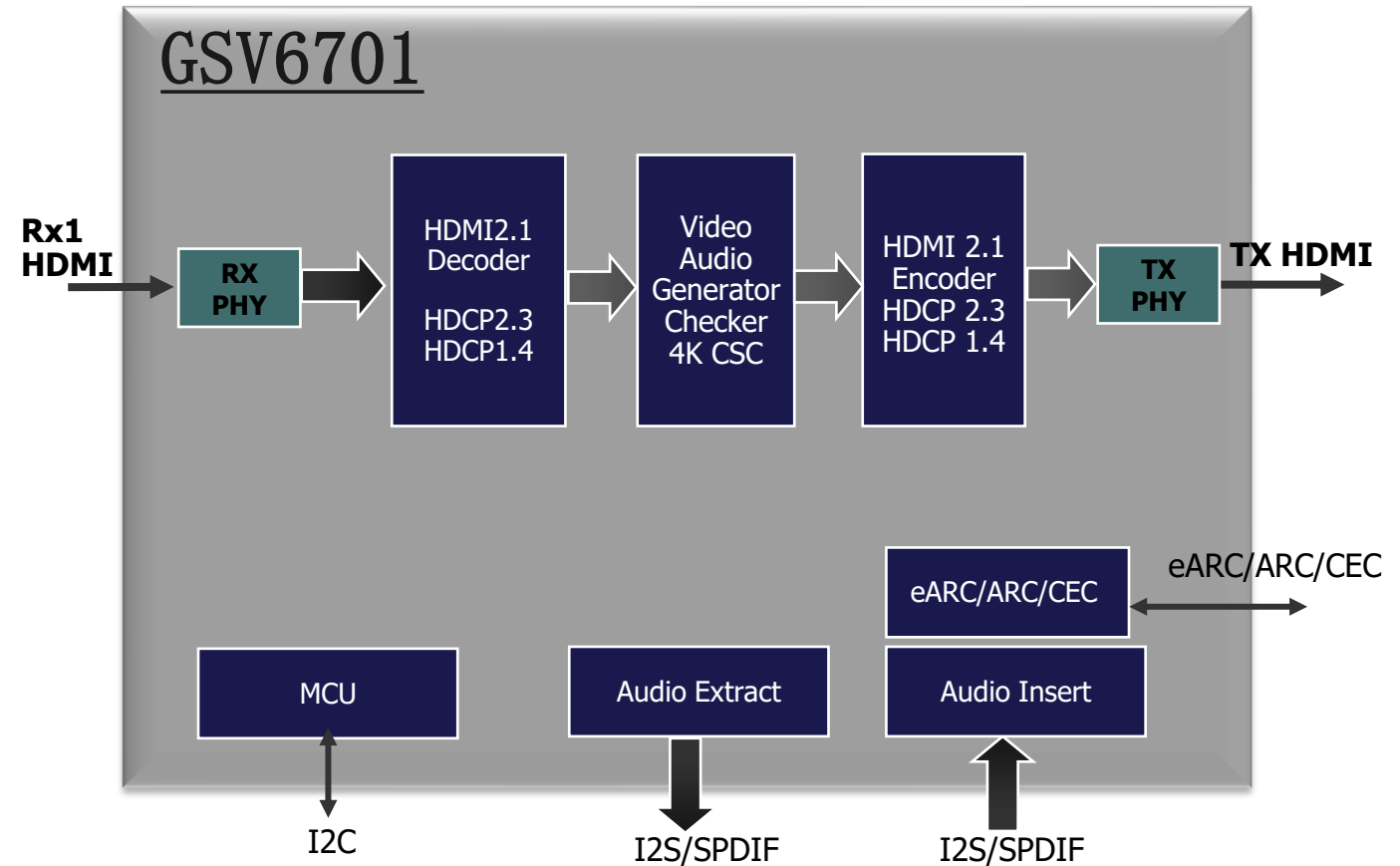
2023

HDMI2.1 Switch/Splitter Family

Product Type	Package	Function Description
GSV6701	76QFN	HDMI2.1 1IN 1OUT TRX with eARC + MCU Full Audio Extraction + 3 pins Audio Insertion
GSV6705	96QFN/ 176BGA	HDMI2.1 4IN 1OUT TRX with eARC + MCU Full Audio Extraction and Insertion
GSV6708	256BGA	HDMI2.1 4IN 2OUT TRX with eARC + MCU Full Audio Extraction and Insertion Flexible Character Based OSD Generator and Blending
GSV650X	96QFN	HDMI2.1 1to4 splitter Support 8K Downscaler and CSC

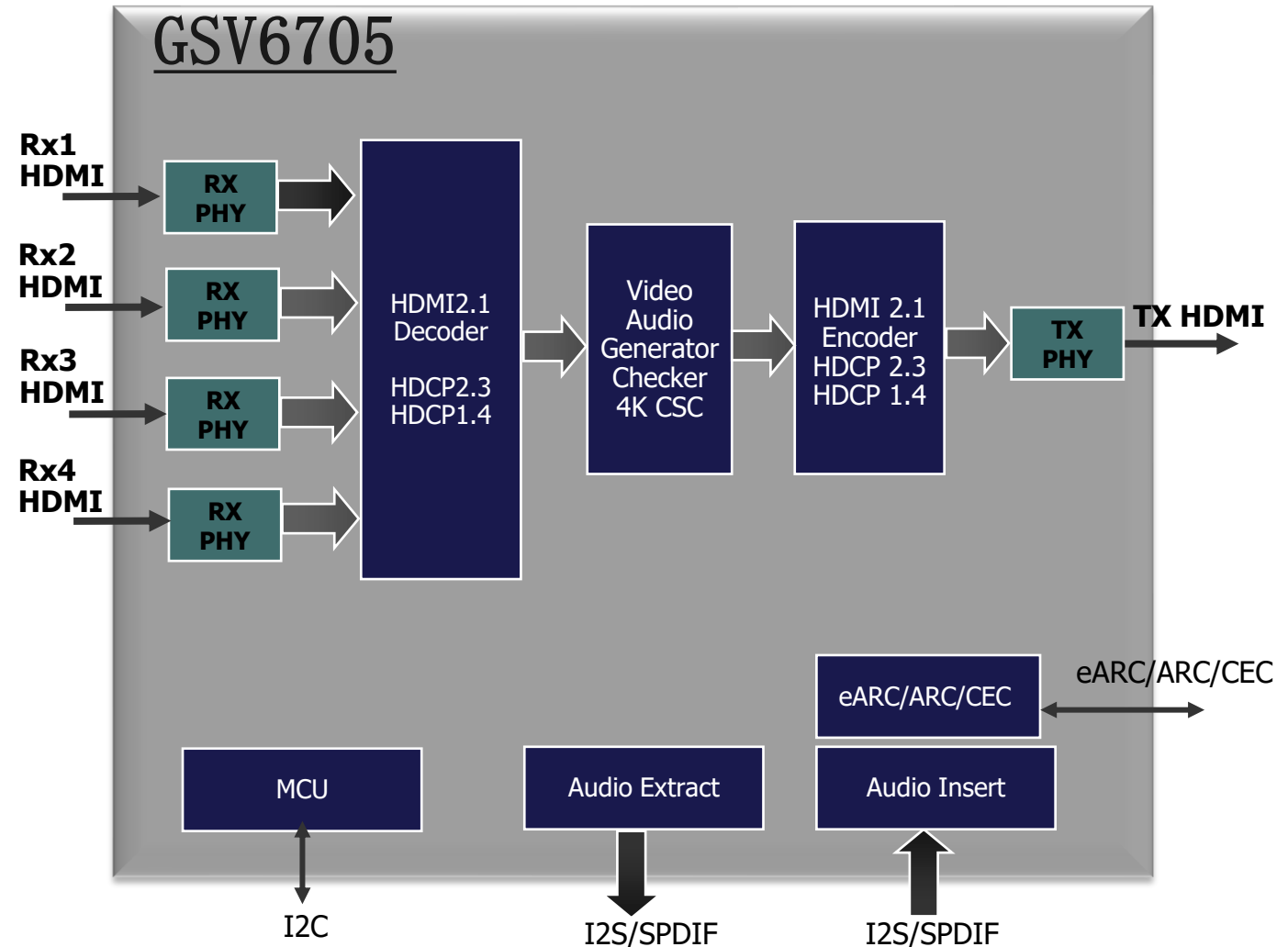
GSV6701 HDMI 1to1 Repeater

- Input/Output port can be configured to be HDMI2.1/2.0/1.4 separately
- HDMI2.1 Port up to 40Gbps (10Gbps per lane)
- HDCP 2.3/2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.3/2.2 and 1.4
- Adaptive EQ for long cable
- Video Generator and Checker
- 4K CSC support
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
 - ❑ eARC/ARC to I2S converter
- 76QFN by Full Input Audio and Limited Output Audio
- Sample: Now



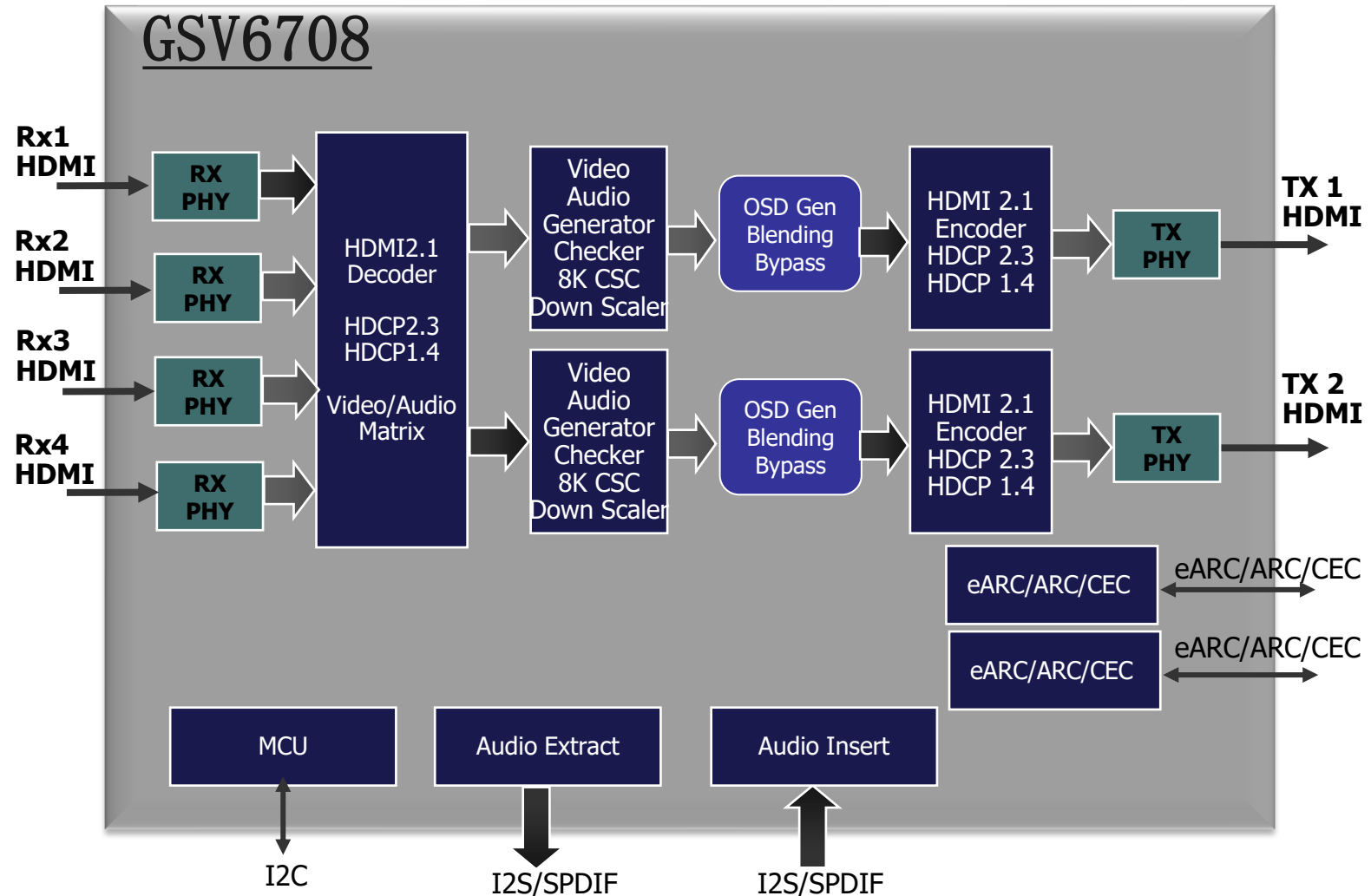
GSV6705 HDMI4to1 Repeater

- 4 Input port can be configured to be HDMI2.1 separately
- HDMI2.1 up to 40Gbps (10Gbps per lane)
- HDCP 2.3/2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.3/2.2 and 1.4
- Adaptive EQ for long cable
- Video/Audio Generator and Checker
- 4K CSC support
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
 - ❑ ARC/eARC to I2S converter
- 176BGA by full audio function
- MP 2022 August



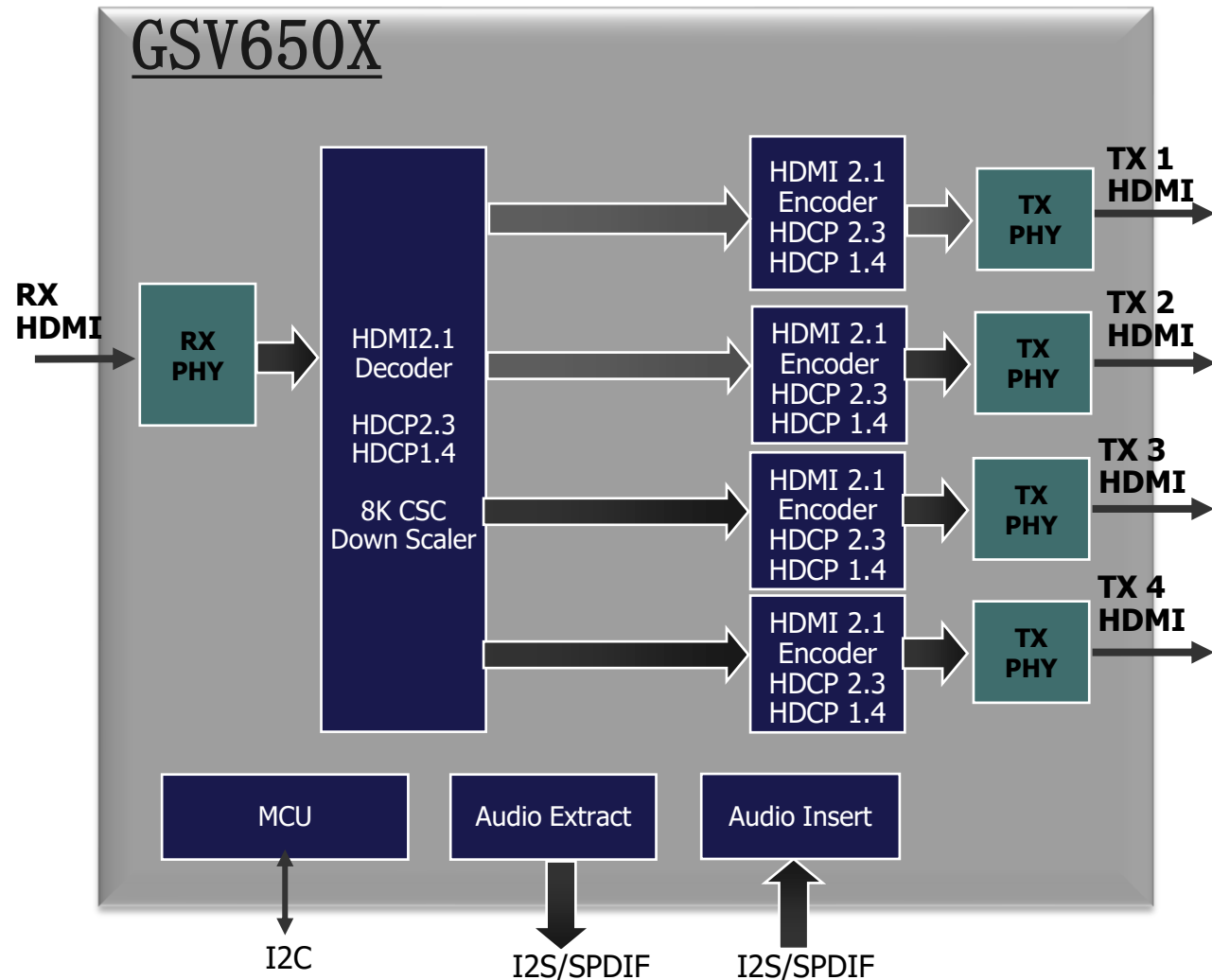
GSV6708 HDMI4to2 CrossSwitch

- 4 Input port can be configured to be HDMI2.1 separately
- HDMI2.1 up to 40Gbps (10Gbps per lane)
- HDCP 2.3/2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.3/2.2 and 1.4
- Adaptive EQ for long cable
- Video/Audio Generator and Checker
- 8K CSC and Down Scaler Support
- Dual Character OSD Generator and Blending
- Dual eARC/ARC RX and Dual CEC
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
- 256 BGA by limited audio function
- MP 2023 Q1



GSV650X HDMI1to4 Splitter

- HDMI2.1 up to 40Gbps (10Gbps per lane)
- HDCP 2.3/2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.3/2.2 and 1.4
- Adaptive EQ for long cable
- Video/Audio Generator and Checker
- 8K CSC and Down Scaler Support
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
- Package QFN96
- MP 2022 Sep



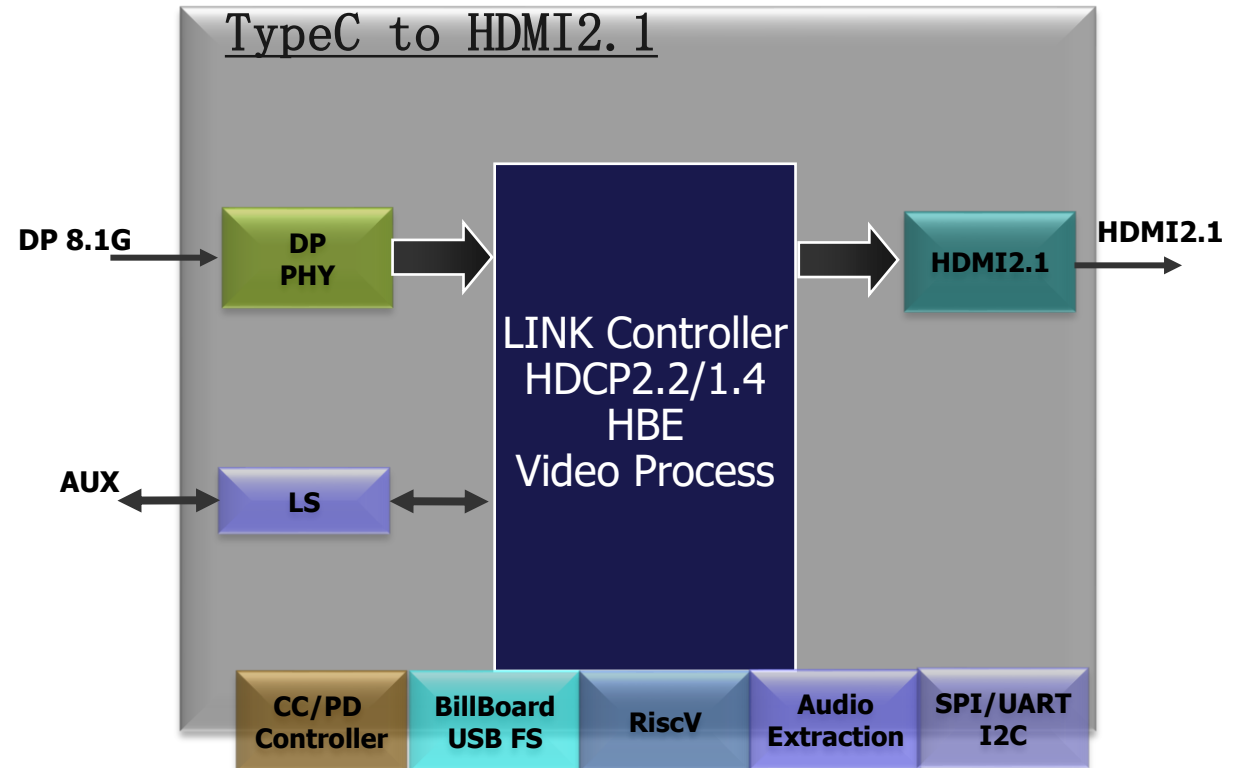
HDMI/DP Converter Family

Product Type	Package	Function Description
GSV620X	56QFN	TypeC/DP to HDMI2.0/2.1
GSV610X	76QFN	MIPI CSI/DSI to HDMI/DP Converter LVDS to HDMI/DP Converter
GSV611X	76QFN	HDMI/DP to MIPI CSI/DSI Converter HDMI/DP to LVDS Converter

GSV620X TypeC/DP to HDMI2.1

- DP1.4 RX HBR3(8.1-Gbps), HBR2, HBR2 and HBR support
- Support DSC pass-through from DP to HDMI2.1
- Support Dual PD/CC controller
- Support Billboard(USB Full Speed)
- Support Audio extraction
- Horizontal Blanking Expansion(HBE)
- ColorSpace converter
- Supports Forward Error Correction(FEC)

- QFN56
- MP 2022 August



GSV620X Target Apps

Product Types	Description	Target Apps
GSV6201 (TypeC/DP to HDMI2.0) GSV6202 (TypeC/DP to HDMI2.1)	<ul style="list-style-type: none"> Support TypeC DP Alt Mode ➤ DP1.4 to HDMI2.0/HDMI2.1 ➤ Support PD3.0/CC controller 	TypeC Docking support up to 4K 60 简易 Docking (Power IC + 6201) TypeC to HDMI Dongle/Cable DP to HDMI Dongle/Cable Laptop, motherboard, monitor, TV, projector, Signage, stream box, game console, AR, VR System



DP to HDMI 转换Cable



TypeC to HDMI Cable



TypeC to HDMI Dongle



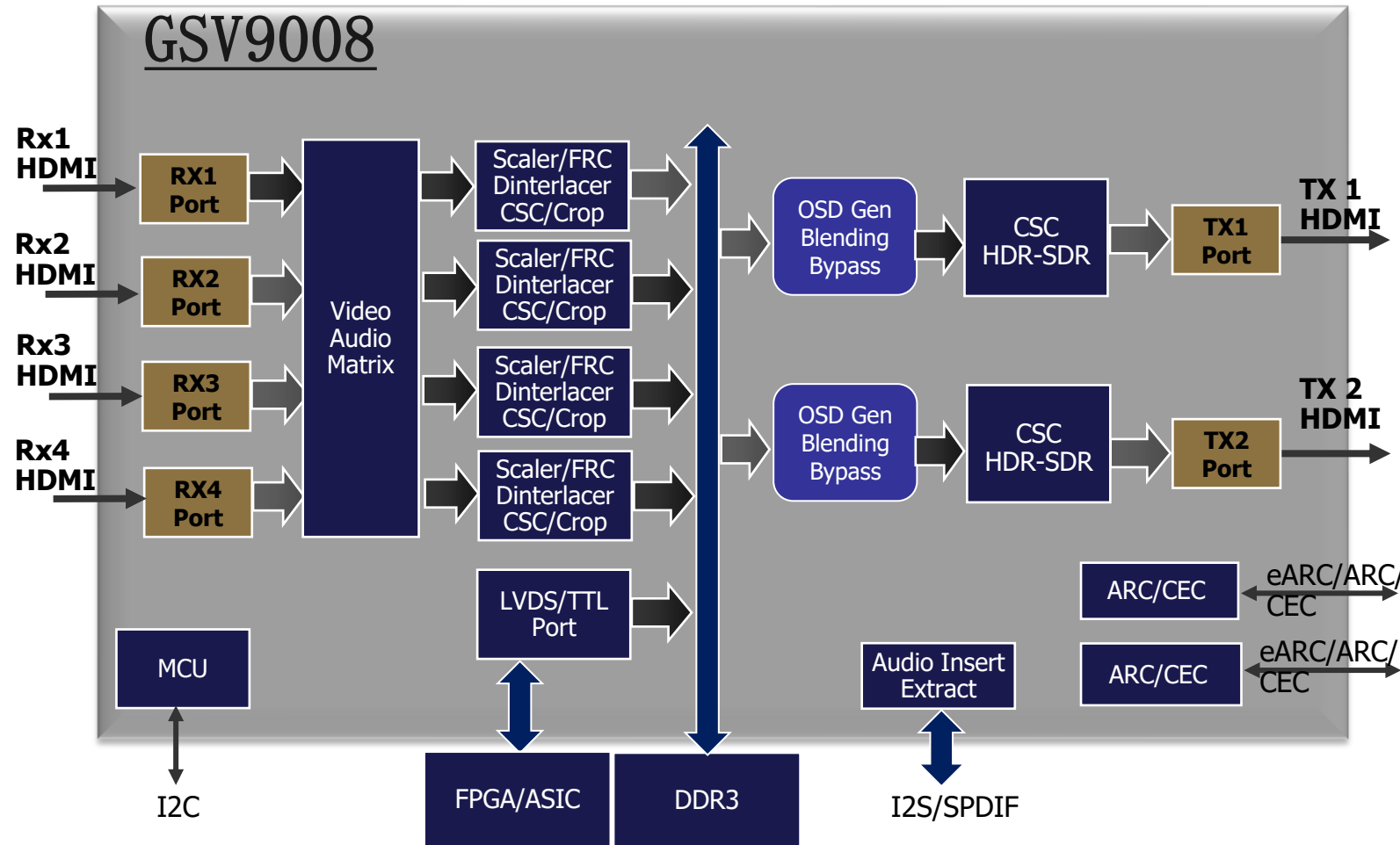
TypeC Docking

HDMI2.1/2.0 Processor Family

Product Type	Package	Function Description
GSV9008	296 BGA	HDMI2.0 4IN 2OUT Scaler/FRC Processor Support External OSD blending up to 4K 60Hz Support Internal OSD generator up to 4K 60Hz Dual ARC/CEC MCU integrated SIP DDR and Flash
GSV9009	296 BGA	HDMI2.1 4IN 2OUT Scaler/FRC Processor Support External OSD blending up to 8K60 Support Internal OSD generator up to 8K 60Hz Dual eARC/ARC/CEC MCU integrated SIP DDR and Flash

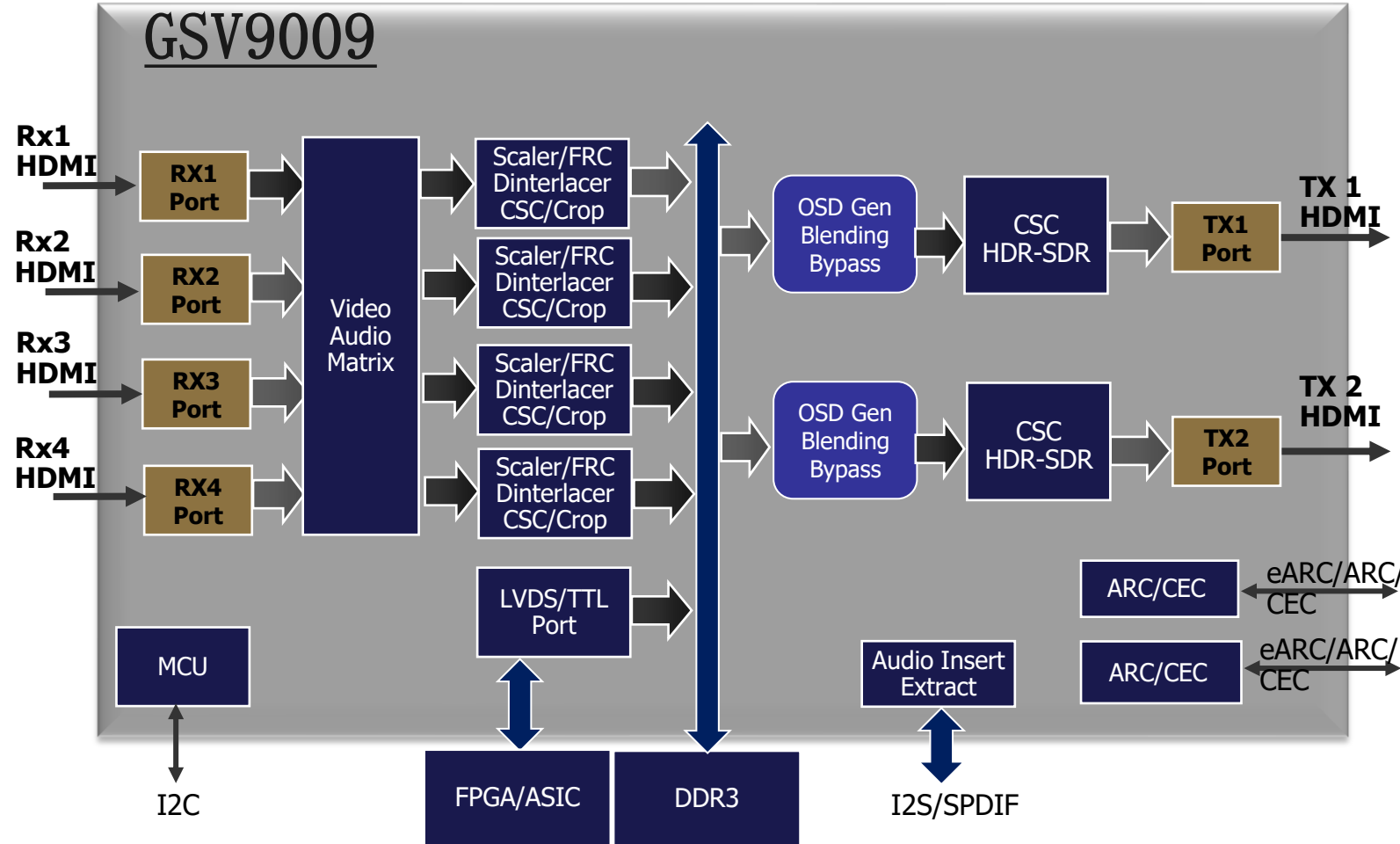
GSV9008 HDMI4to2 Processor

- 4 Input ports and Dual output ports support up to HDMI2.0 separately
- Video Processor
 - Scaler from 480P up to 4K 60Hz Arbitrary Converter
 - CSC and HDR-SDR up to 4K 60Hz
 - 480i/576i/1080i deinterlacer
 - FRC from 24Hz to 120Hz
 - Flexible Crop and Picture Blending
 - Seamless Switching
 - Support MultiViewer and PIP up to 4K
- OSD
 - Support External OSD blending up to 4K 60Hz through LVDS/TTL Bus
 - Internal Character OSD Generator up to 4K 60Hz
- Dual ARC/CEC
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
- SIP DDR and Flash
- 296 BGA
- MP 2022 Sep



GSV9009 HDMI4to2 Processor

- 4 Input ports and Dual output ports support up to HDMI2.1 separately
- Video Processor
 - Scaler from 480P up to 8K 60Hz Arbitrary Converter
 - CSC and HDR-SDR up to 8K 60Hz
 - 480i/576i/1080i deinterlacer
 - FRC from 24Hz to 120Hz
 - Flexible Crop and Picture Blending
 - Seamless Switching
 - Support MultiViewer and PIP up to 8K
- OSD
 - Support External OSD blending up to 8K 60Hz through LVDS/TTL Bus
 - Internal Character OSD Generator up to 8K 60Hz
- Dual ARC/CEC
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
- SIP DDR and Flash
- 296 BGA
- MP 2023 March



GSV RELEASED PRODUCT OVERVIEW

Released GSV Products Overview

HDMI
Splitter/
Repeater

Product Types	Target HDMI Version	Package	Target Apps
GSV1008	HDMI1.4 4to2 Matrix	BGA208	ProAV, Box
GSV1005	HDMI1,4 1to4 Splitter with CSC/Scaler/Audio	QFN124	ProAV, Box
GSV1001	HDMI1.4 1to2 Splitter with CSC/Scaler/Audio	QFN76	ProAV, Box
GSV2002	HDMI2.0 Switch/splitter	QFN96	ProAV, Box
GSV2001	HDMI2.0 1to2 Splitter with Audio Extraction	QFN76	BOX, Soundbar, Audio Extraction
GSV2005	HDMI2.0 1to4 Splitter Support pass-through only	QFN124	ProAV Box
GSV2006	HDMI2.0 2to4 Splitter with Dual CSC/Scaler/Audio	BGA208	ProAV, Box
GSV2008	HDMI 2.0 4to2 Matrix with Dual CSC/Scaler/Audio	BGA208	ProAV, Matrix, Box
GSV2007A	HDMI 2.0 4to1 Repeater with HDCP&Audio Extraction/CSC/ARC	QFN124	Box, Soundbar, Audio Extraction
GSV2007S	HDMI 2.0 4to1 Analog Switch	QFN124	ProAV, Box
GSV1011	HDMI 1.4 Repeater + TTL/LVDS out + Audio	BGA 144	FPGA+SOC
GSV1015	HDMI 1.4 RX	BGA 144	FPGA+SOC
GSV1016	HDMI 1.4 TX	BGA 144	FPGA+SOC
GSV2011	HDMI2.0 Repeater + TTL/LVDS out + Audio	BGA 144	FPGA+SOC
GSV2015	HDMI 2.0 RX	BGA 144	FPGA+SOC
GSV2016	HDMI 2.0 TX	BGA 144	FPGA+SOC

UHD
Bridge

UHD
Extender

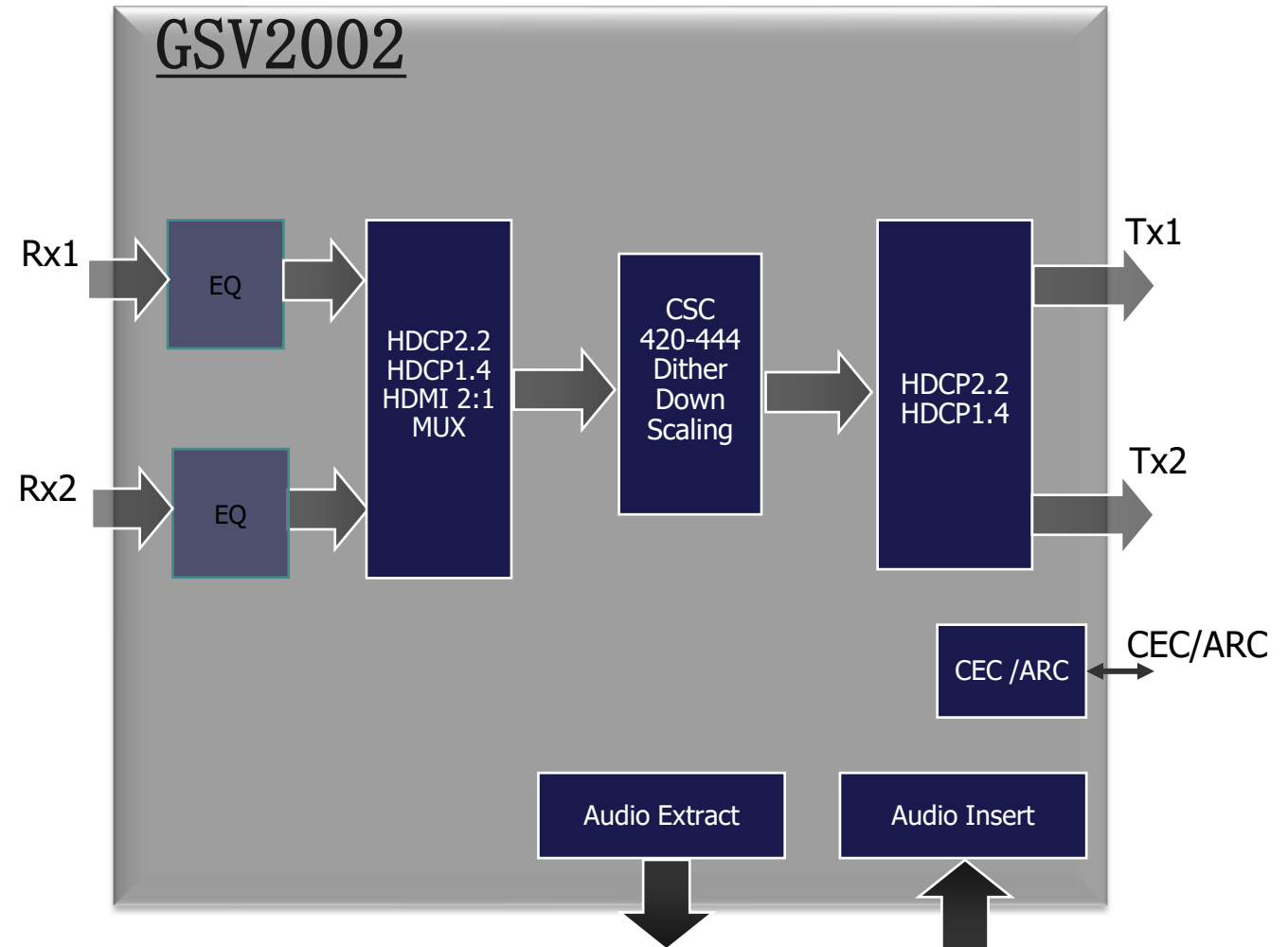
Product Types	Target HDMI Version	Package	Target Apps	Release Date
GSV5010	HDMI1.4 Extender with loop out + audio	QFN96	ProAV, Box	Now
GSV5100	HDMI2.0 Extender with loop out + audio	QFN96	ProAV, Box	Now

小结

- 稳定的客户群
 - 国内及国际知名客户，如快思聪（Crestron）/哈曼（Harman）
- 国内首家提供HDMI2.0桥接系列产品的公司
- 提供的HDMI转网线的产品是具有全球竞争性的产品
- 将是全球前三发布HDMI2.1收发器芯片的公司
- 在专业音视频、工业和车载领域具有很长的产品销售周期及可持续发展的业务
- 多家国际组织会员，如VESA, HDMI, HDCP, SDVOE等

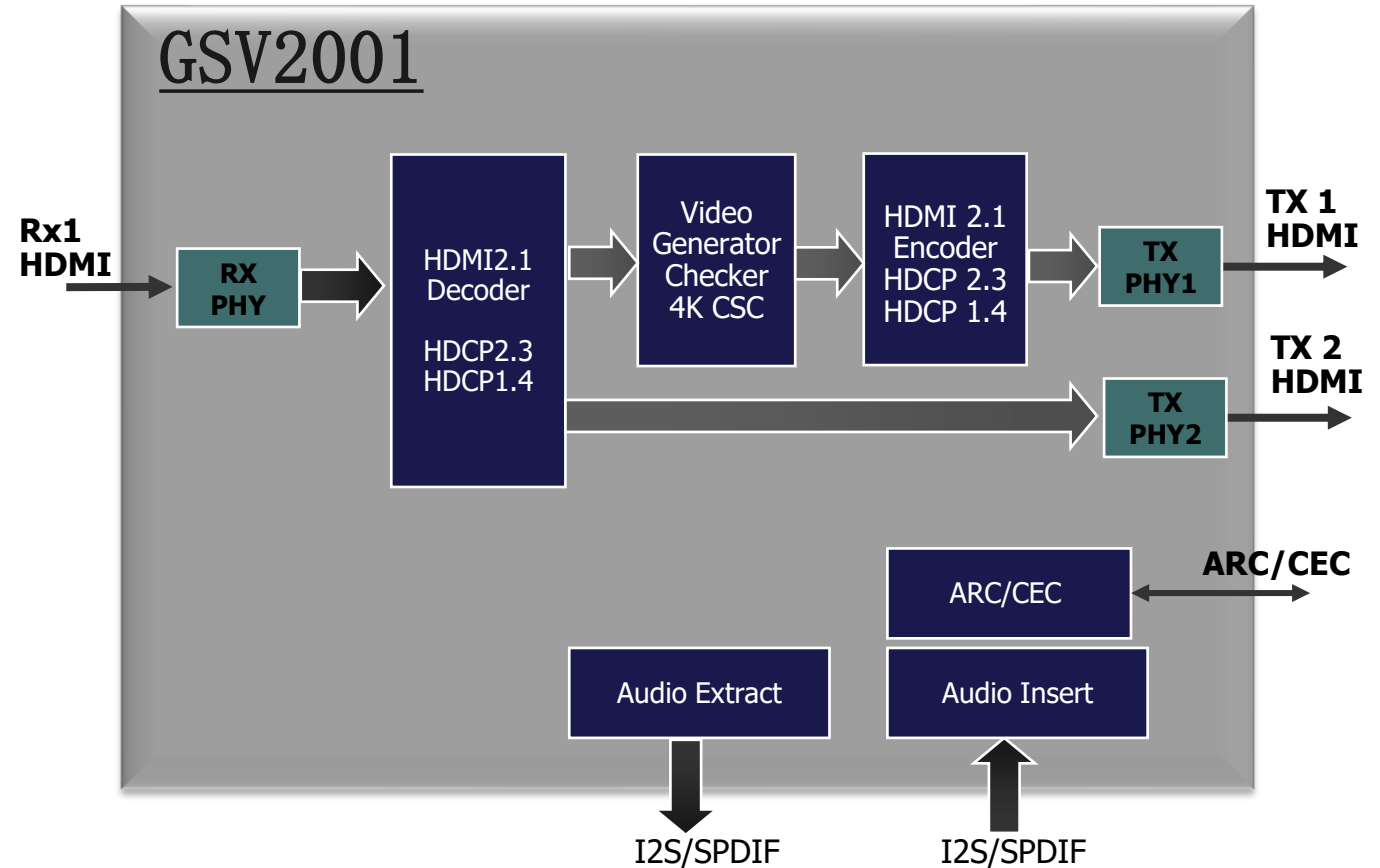
GSV2002 HDMI_Switch&Splitter

- Target Apps
 - ❑ 2:1 Switch for Sound box
 - ❑ 1:2 HDMI Splitter
- 2 HDMI IN 2 HDMI OUT
- UHD 18 Gbps
- HDCP 2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.2 and 1.4
- Adaptive EQ for long cable
 - ❑ 18Gbps 8 M
 - ❑ 9Gbps 25M
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
- Video Processing
 - ❑ 420-444 converter in each channel
 - ❑ Down scaling from 4k to 1080
 - ❑ Flexible color space converter
 - ❑ Up/Down Dither
- 96 QFN 10x10mm
- Nov 2018 Release



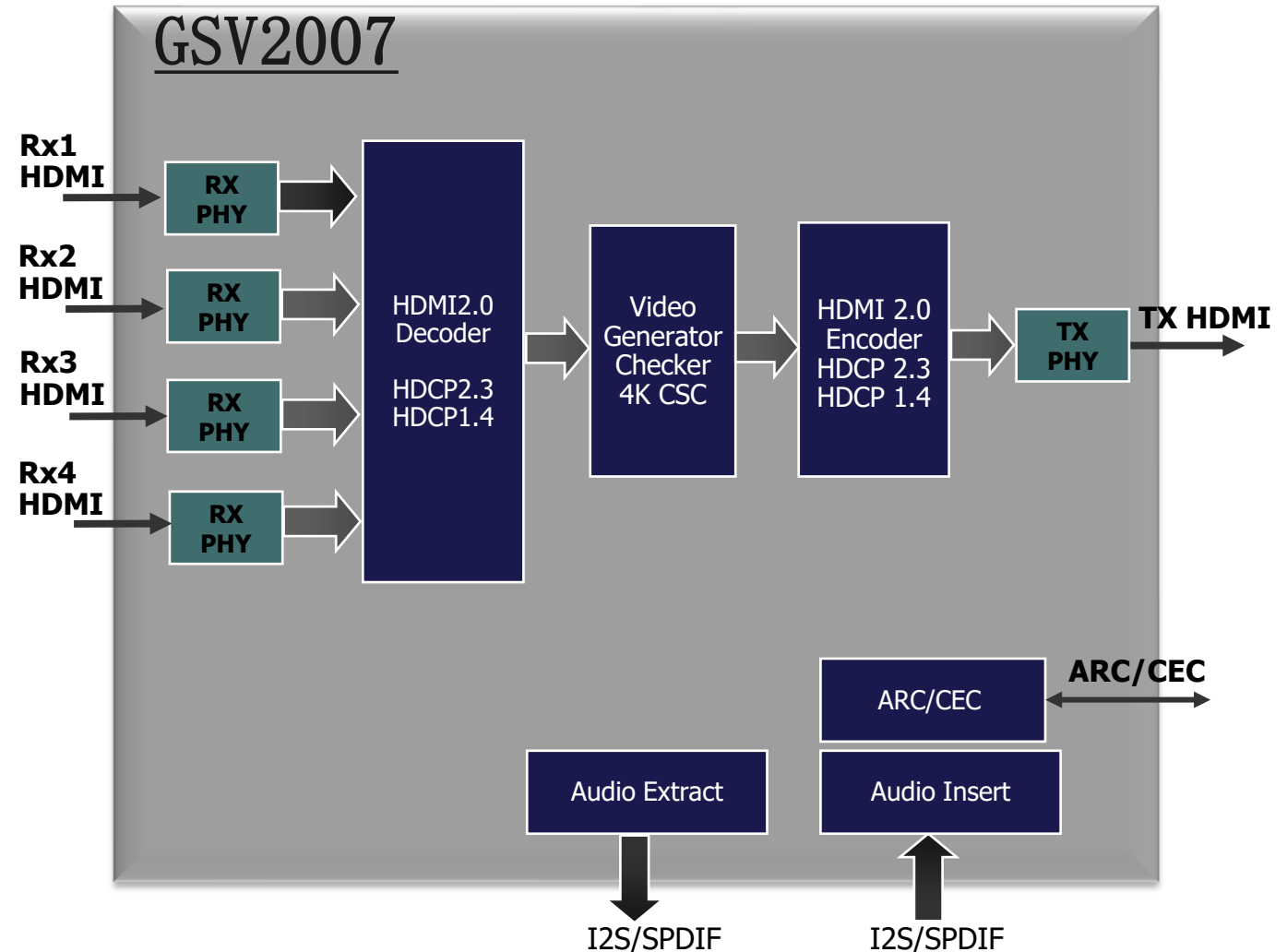
GSV2001_HDMI2.0_1to2 Repeater

- 1 HDMI IN 2 HDMI OUT
- UHD 18 Gbps HDMI2.-
- HDCP 2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.2 and 1.4
- Adaptive EQ for long cable
 - ❑ 18Gbps 8M
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
 - ❑ TDM support in each audio pin up to 8 channels
- Support CEC/ARC
- Video Processing
 - ❑ Support Video Generator
 - ❑ 420-444 converter in each channel
 - ❑ Down scaling from 4k to 1080
 - ❑ Flexible color space converter
 - ❑ Up/Down Dither
- 76 QFN 9x9 mm
- 2020.6 MP



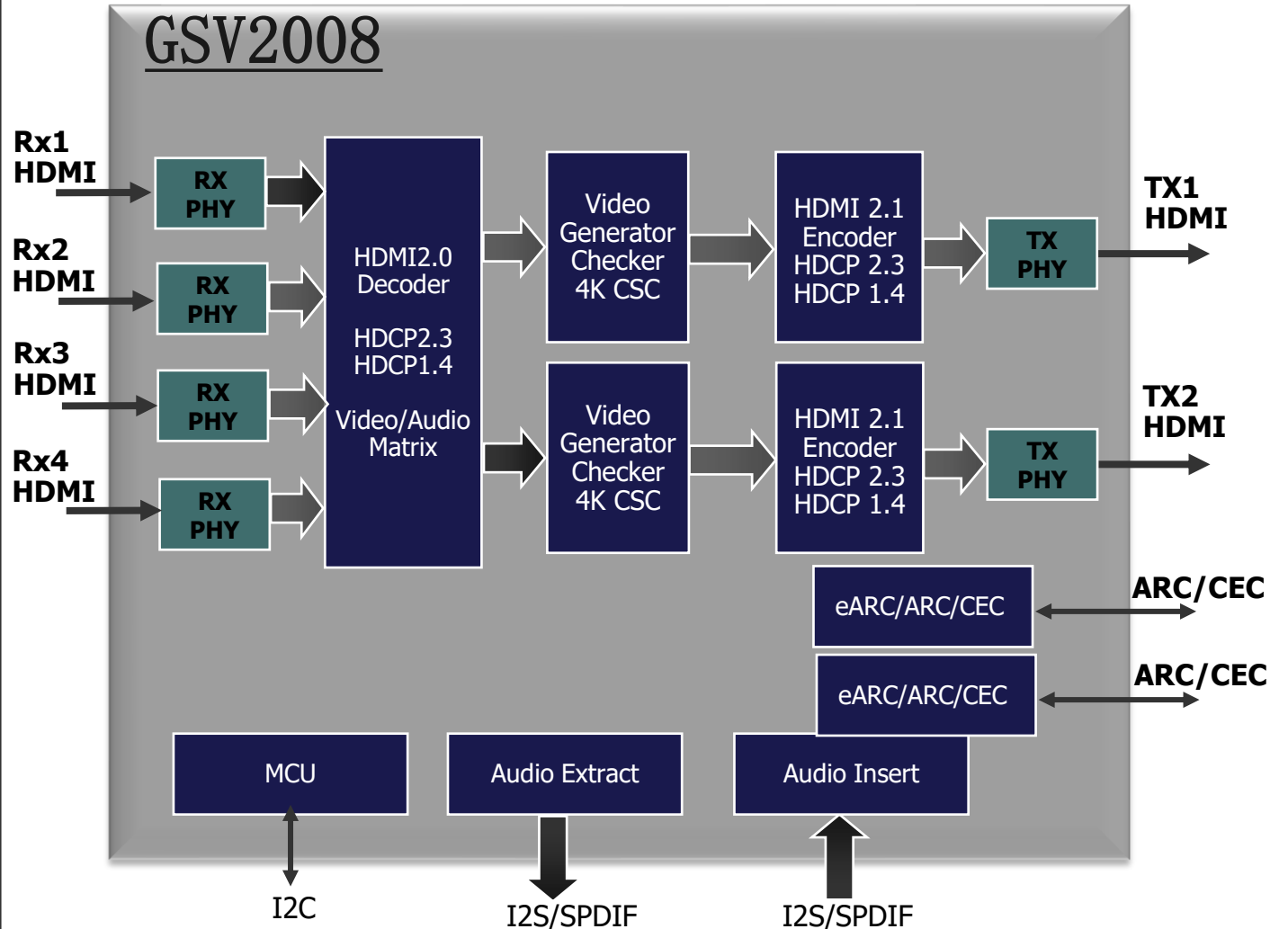
GSV2007_HDMI2.0_4to1 repeater

- 4 HDMI IN 1 HDMI OUT
- UHD 18 Gbps
- HDCP 2.2/2.3/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.2/2.3 and 1.4
- Adaptive EQ for long cable
 - ❑ 18Gbps 8M
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
 - ❑ TDM support in each audio pin up to 8 channels
- Support CEC/ARC
- Video Processing
 - ❑ Support VideoGen
 - ❑ 420-444 converter in each channel
 - ❑ Flexible color space converter
 - ❑ Up/Down Dither
- 124 QFN 12x12mm
- 2020 March MP



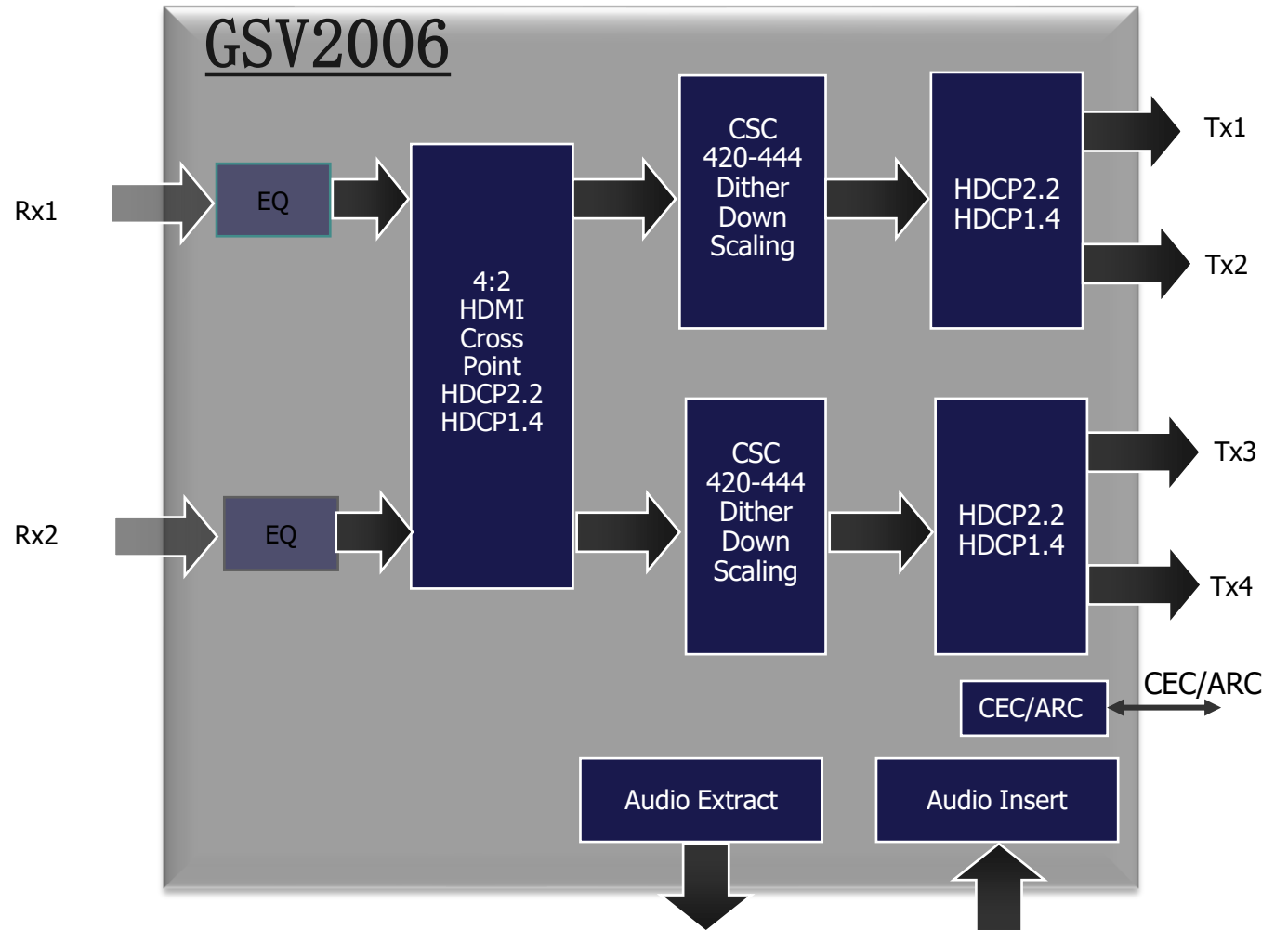
GSV2008_HDMI_Cross-Switch

- 4 HDMI IN 2 HDMI OUT
- UHD 18 Gbps
- HDCP 2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.2 and 1.4
- Adaptive EQ for long cable
 - ❑ 18Gbps 8M
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
 - ❑ TDM support in each audio pin up to 8 channels
- Support CEC/ARC
- Video Processing
 - ❑ Support VideoGen
 - ❑ 420-444 converter in each channel
 - ❑ Down scaling from 4k to 1080
 - ❑ Flexible color space converter
 - ❑ Up/Down Dither
- 208 LFBGA 14x14mm
- 2018.10 MP



GSV2006 HDMI2to4 Matrix

- 2 HDMI IN 4 HDMI OUT
- UHD 18 Gbps
- HDCP 2.2/1.4
 - ❑ Repeater Support
 - ❑ Flexible converter between 2.2 and 1.4
- Adaptive EQ for long cable
 - ❑ 18Gbps 8 M
 - ❑ 9Gbps 25M
- Dual Audio Extraction and Insertion
 - ❑ Support 3D and Multi-stream
 - ❑ Atmos support
- Video Processing
 - ❑ 420-444 converter in each channel
 - ❑ Down scaling from 4k to 1080
 - ❑ Flexible color space converter
 - ❑ Up/Down Dither
- 208 LFBGA 14x14mm
- Nov 2018 Release



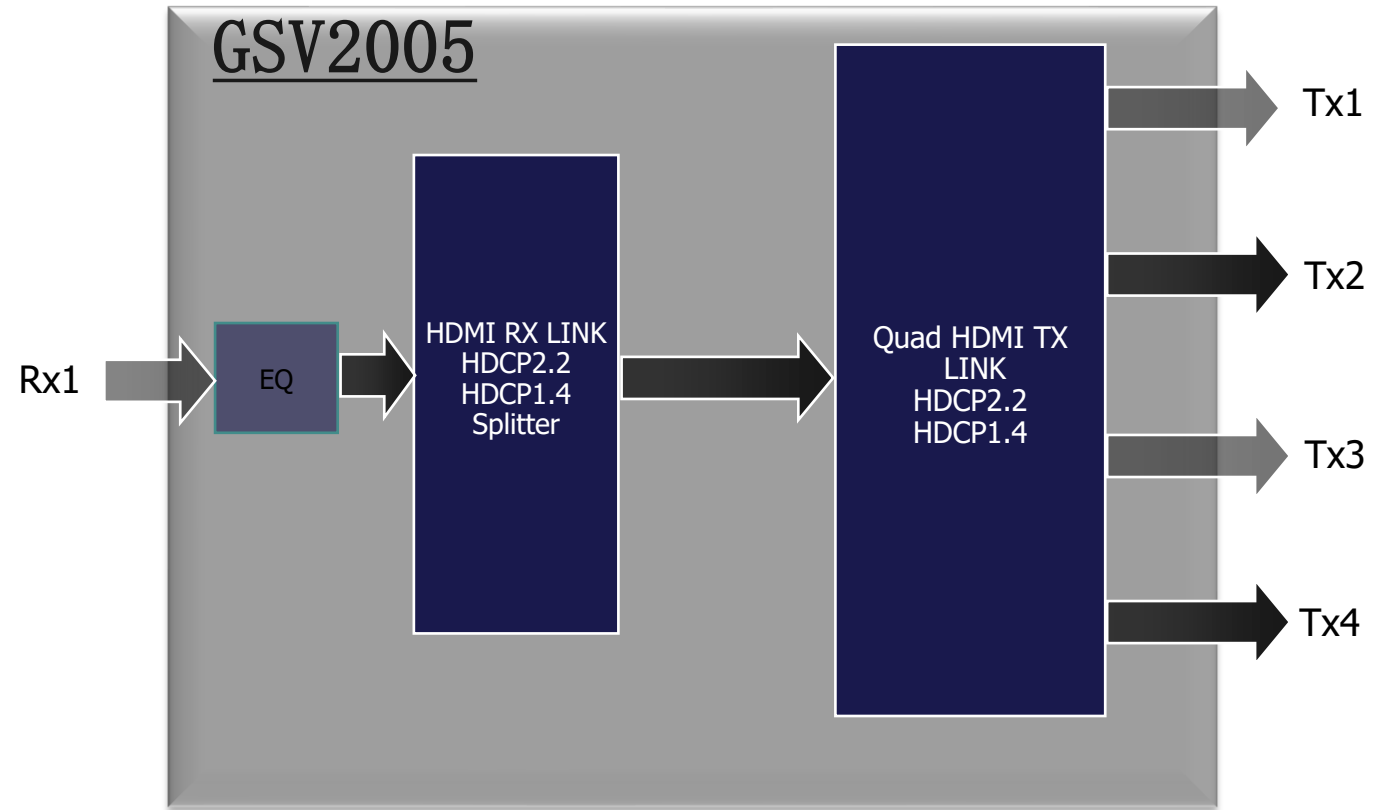
GSV2005 HDMI1to4 Splitter

- 1 HDMI IN 4 HDMI Splitter OUT
- UHD 18 Gbps for Each Port
- HDCP 2.2/1.4 for Each Port

- Adaptive EQ for long cable
 - ❑ 18Gbps 8 M
 - ❑ 9Gbps 25M
- Pass-through Mode

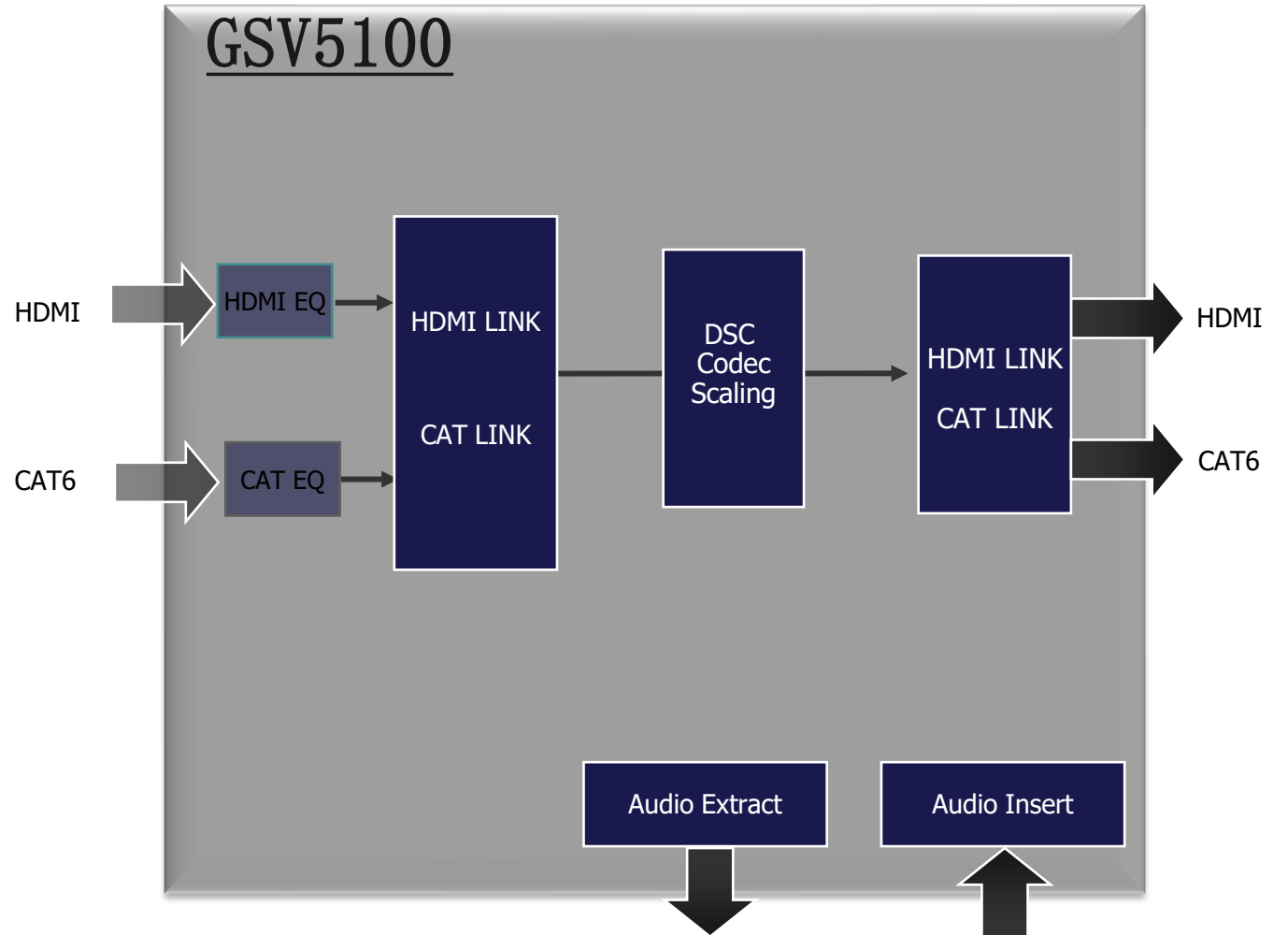
- 124 QFN 12x12mm

- Feb 2020 Release



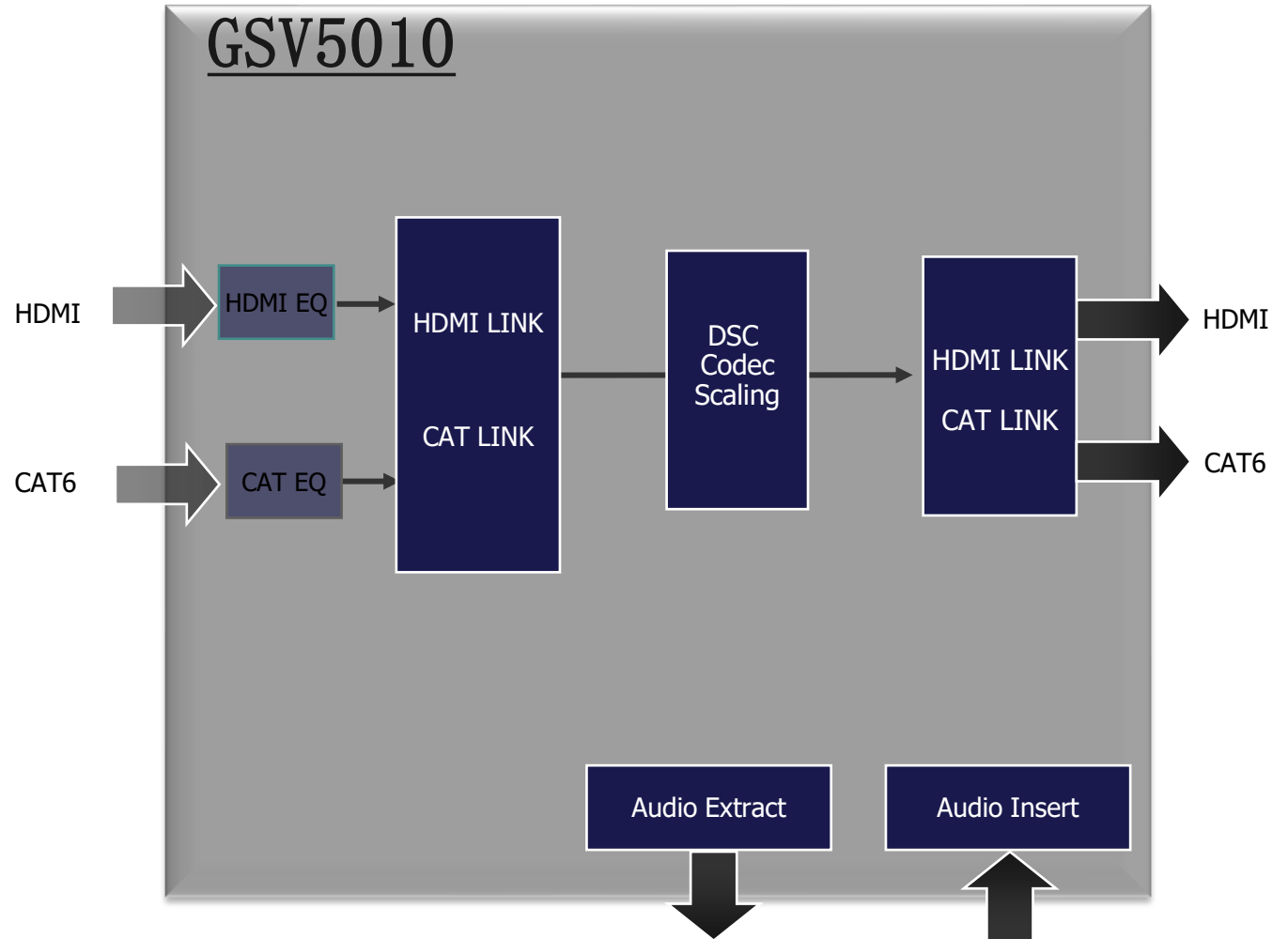
GSV5100 HDMI2.0 TRX + DSC Codec

- Target Apps
 - ❑ Convert UHD to legacy 1080P network
 - ❑ HDMI-CAT6 Extender
 - ❑ KVM
- UHD 18 Gbps
- HDCP 2.2/1.4
 - ❑ Flexible converter between 2.2 and 1.4
- 4K 60 up to 60M
- Dual Audio Extraction and Insertion
- Video Processing
 - ❑ 420-444 converter
 - ❑ Down scaling from 4k to 1080
 - ❑ Compression Codec Ratio ranging 2-8
- 96 QFN 10x10mm
- Nov 2018 Release



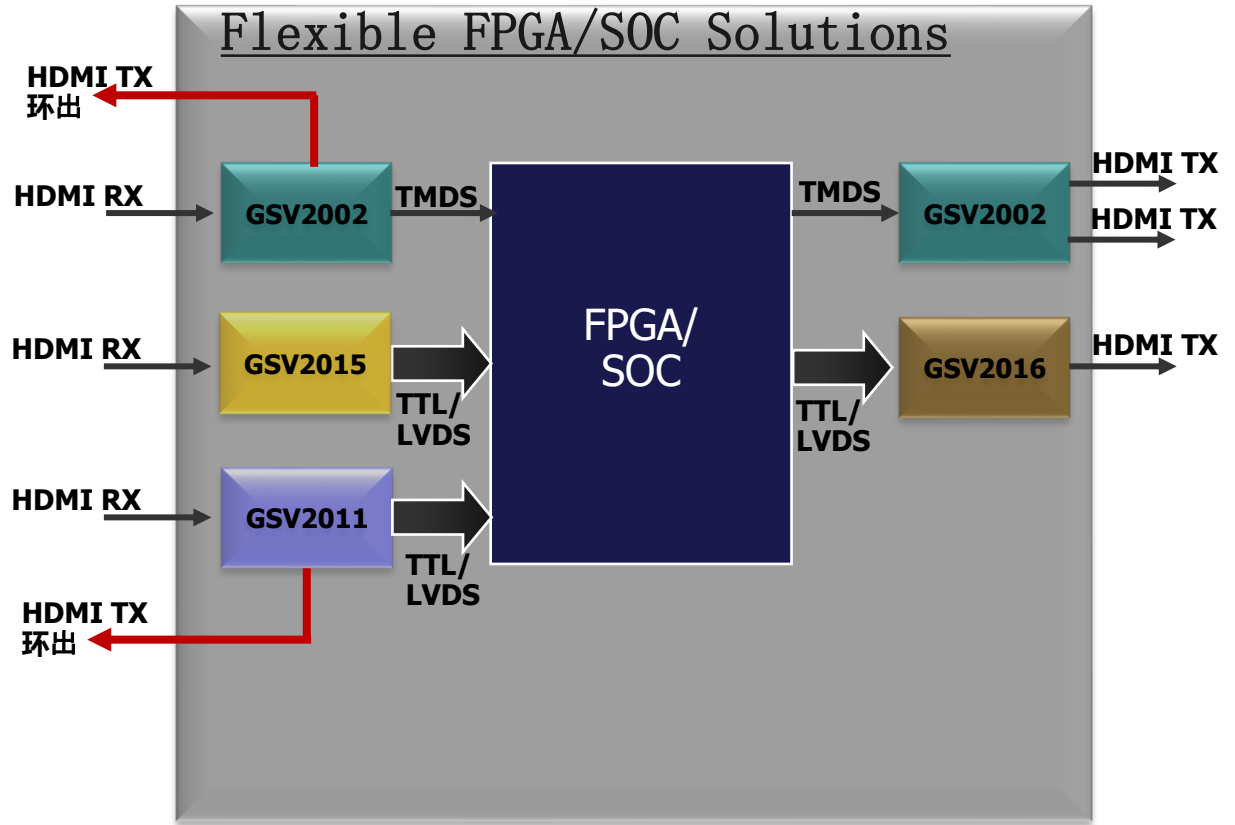
GSV5010 HDMI1.4 TRX + DSC Codec

- Target Apps
 - ❑ Convert UHD to legacy 1080P network
 - ❑ HDMI-CAT6 Extender
 - ❑ KVM
- UHD 18 Gbps
- HDCP 1.4
- 4K 30 Hz up to 70M
- Dual Audio Extraction and Insertion
- Video Processing
 - ❑ 420-444 converter
 - ❑ Down scaling from 4k to 1080
 - ❑ Compression Codec 2-8
- 96 QFN 10x10mm
- Nov 2018 Release



HDMI Solutions for SOC/FPGA

- GSV2011 HDMI TRX
 - HDMI 2.0 Repeater
 - LVDS/TTL output
 - Audio Output
- LVDS
 - Max 1.2Gbps 12 Pairs DDR mode
 - Clock Differential 600MHz DDR mode
 - HS/VS/DE embedded through SOF/EOF
- TTL
 - SDR/DDR dual modes;
 - Dual DDR modes for 4k60444 support
 - BT1120/BT656 support



GSV2011

Features:

- HDMI2.0 TRX transceiver with LVDS/TTL
- Bi-directional LVDS and TTL to support the video format up to the 4K 60 444
- Patented UDP bus to support the combination of video/audio/info-frames
- HDCP2.2/1.4 for each HDMI port
- SPDIF/I2S/HBR/DSD Audio Extraction
- SPDIF/I2S/HBR/DSD Audio Insertion
- ARC to I2S support
- **Clock generator for 4 channel differential clocks**
 - **25MHz ~ 600MHz arbitrary clocks**
 - **Indepent channel controlled via SPI**

- 144 BGA 10x10mm
- May 2020 Release

