

# DisplayPort receiver

## DisplayPort to digital TTL converter for TV and monitor applications



### GM68020: DisplayPort receiver IC

This device is designed for the reception of secure, high-bandwidth, uncompressed digital audio-video signals for next-generation TV, projector, and PC display systems. The DisplayPort link bandwidth in the GM68020 can support full HD video (1080p 30-bit color per pixel) at 120 Hz or support 2560x1600 at 60 Hz graphics along with audio streams. Unlike conventional display interfaces, DisplayPort is scalable (1/2/4 lanes) and link bandwidth can be freely traded between video resolution, refresh rate, and pixel bit depth.

The GM68020 offers a comprehensive feature set of video and audio format conversion, and high-bandwidth digital content protection for secured digital reception of uncompressed audio-video streams.

### Key features

- DisplayPort 1.1a compliant receiver
- HDCP 1.3 support
- Single Displayport link configurable as 1, 2 or 4 main lanes
- Bandwidth for handling WQXGA (60 Hz) or full HD (120 Hz), 8/10-bit video, along with up to 8-channel audio with 24-bit sample rate at 192 kHz
- 60-bit LVTTTL output configurable as single port or dual port with single pixel per clock or two pixels per clock
- RGB or YCbCr output color format
- RGB/YCbCr 4:4:4 -1x60, 1x48, 1x30, 1x24
- YCbCr 4:2:2 -1x24, 1x20, 1x16
- Color space conversion from RGB to YUV, and YUV to RGB
- I<sup>2</sup>S (8 channel) or S/PDIF audio output ports compliant with IEC 60958 and IEC 61937 formats

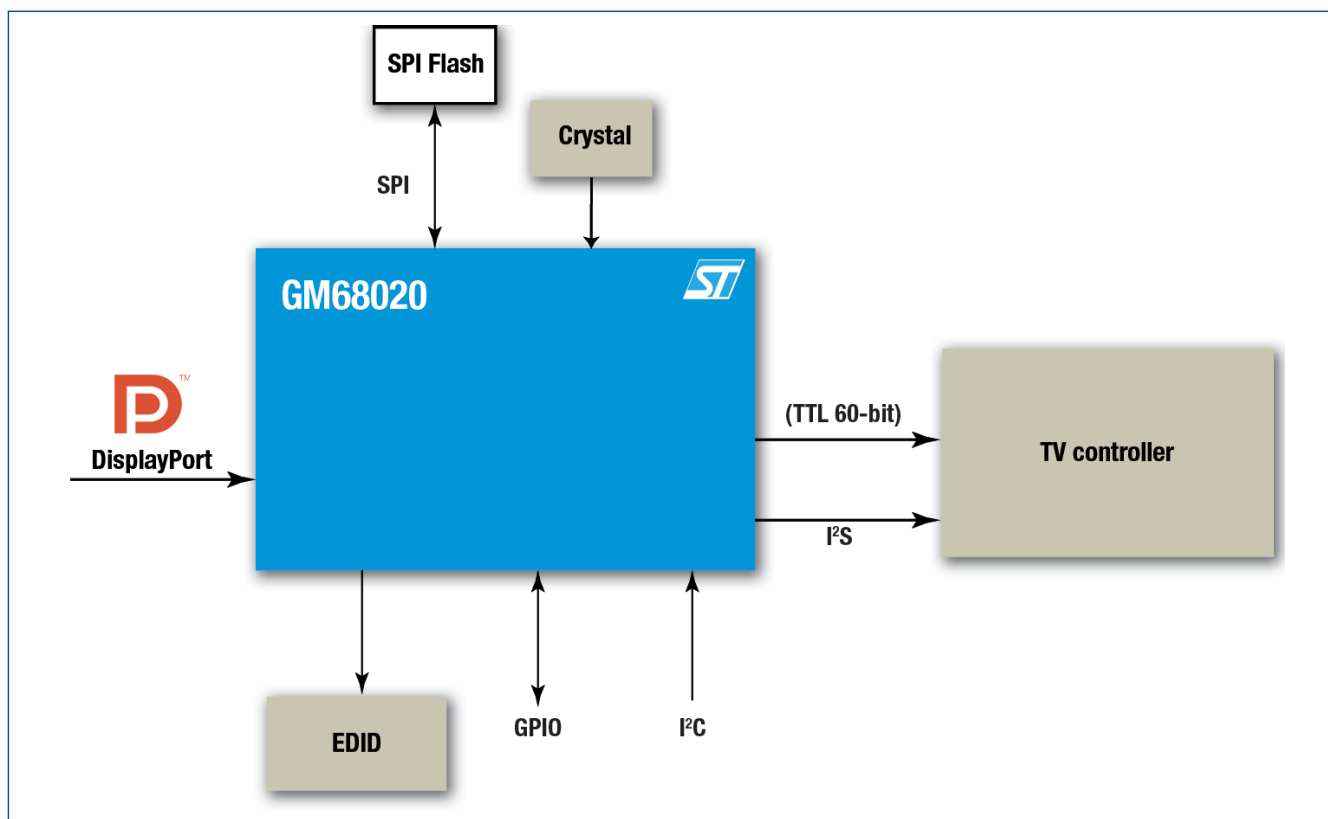
### Key benefits

- Proven interoperability with all major DisplayPort vendors
- HDCP 1.3 support with repeater capability
- Integrated HDCP key storage for improved security and BOM reduction
- On-chip microprocessor enables standalone operation for customized applications
- Flexible interface to ease system design: DisplayPort 1, 2, 4 lane configuration, 60/48/30/24 TTL port, YUV/RGB color format
- Low EMI
- Low power

### Target applications

- High bandwidth digital box-to-box interface for TV, monitor and projector applications
- Inside system interface for high resolution panels

## GM68020 system architecture



## Software development and evaluation platform

STMicroelectronics provides a comprehensive suite of hardware and software tools to enable rapid product development. Complete turnkey reference design available with source code for quick time-to-market.



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