

# TMS320C6678 multicore DSP for multimedia infrastructure



## Delivering high density, low power and cost efficiency

Texas Instruments' TMS320C6678 multicore DSP offers the high density, high quality features that customers require for applications such as multimedia gateways, IMS media servers, video conferencing servers and video broadcast equipment. This 10-GHz multicore processor is part of TI's extensive portfolio of programmable processors targeted for the telecom and video processing markets.

The C6678 is the industry's highest performing multimedia solution, featuring eight 1.25 GHz DSP cores and 320 GMACs and 160 GFLOPs of combined and fixed- and floating-point performance. These features enable users to save board space and cost, and reduce overall power consumption.

## Key features

- Eight, 1.25 GHz C6678 DSP cores with 320 GMACs/160 GFLOPs of fixed- and floating point performance
- Access to a full range of video, audio and voice codecs
- Multicore software developer's kit and C6678 evaluation module speed product development
- Extensive third party network and hardware/software support

| Multimedia Application  | System Solution Density<br>(# of channels) |                           |
|---|--|---------------------------|
|   | PCIe card<br>8 C6678 DSP                   | ATCA card<br>20 C6678 DSP |
| Mobile Voice Applications<br>AMR Encode + Decode, 12.2Kbps        | 11,000                                     | 27,500                    |
| Mobile Video Applications<br>H.264 BP encode + decode, CIF, 30fps | 240  | 600                       |
| Content Delivery Network<br>H.264 BP Encode + Decode, SD, 30fps   | 120  | 300                       |
| HD Conferencing MCU, MRFP<br>H.264 BP Encode + Decode, 1080p30    | 12   | 30                        |
| HD Broadcast<br>AVCIntra-100, 10-bit, 4:2:2, 60fps                | 5  | 12                        |

## Codec Support

|                     |   |
|---------------------|---|
| <b>Video codecs</b> | JPEG2000, AVC-INTRA 50/100, H.265, H.264 10bit 4:2:2, H.263, MPEG4, MPEG2 4:2:2, JPEG, VC1, SVC, Sorenson Spark encoders and decoders |
| <b>Audio codecs</b> | AAC, AACv2, AC3, MP3, WMA8, WMA9 encoders and decoders  |
| <b>Voice codecs</b> | G711, G718, G722, G722.1, G723, G726, G728, G729AB, G729G, GSM-ARM w/EFR, GSM-FR, EVRC-B, WBAMR                                       |

## Accelerating multimedia designs

The C6678 is an ideal video infrastructure solution to keep pace with evolving standards, technologies and demands from today's "always connected" multimedia devices. The C6678 is a fully programmable and flexible solution allowing for rapid support of key features such as Motion Compensated Temporal Filtering (MCTF as part of the H.264/AVC standard) and Adaptive Bit Rate Encoding, essential for meeting the demand for high quality, non-buffering video for applications such as online gaming.

To ease application development, TI offers an extensive portfolio of video, audio and voice codecs that are available at no cost from TI. In addition, the low-cost TMS320C6678 "Lite" Evaluation Module, that includes TI's Multicore Software Developer's Kit and Code Composer Studio integrated development environment, allows programmers to quickly come up to speed on the C6678.

For more information, visit [www.ti.com/c6678](http://www.ti.com/c6678)



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|                        |  |
|------------------------|--|
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| Data Converters        | <a href="http://dataconverter.ti.com">dataconverter.ti.com</a>                       |
| DLP® Products          | <a href="http://www.dlp.com">www.dlp.com</a>   |
| DSP                    | <a href="http://dsp.ti.com">dsp.ti.com</a>   |
| Clocks and Timers      | <a href="http://www.ti.com/clocks">www.ti.com/clocks</a>                             |
| Interface              | <a href="http://interface.ti.com">interface.ti.com</a>                               |
| Logic                  | <a href="http://logic.ti.com">logic.ti.com</a>                                       |
| Power Mgmt             | <a href="http://power.ti.com">power.ti.com</a>                                       |
| Microcontrollers       | <a href="http://microcontroller.ti.com">microcontroller.ti.com</a>                   |
| RFID                   | <a href="http://www.ti-rfid.com">www.ti-rfid.com</a>                                 |
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| Wireless Connectivity  | <a href="http://www.ti.com/wirelessconnectivity">www.ti.com/wirelessconnectivity</a> |

### Applications

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|-------------------------------|--|
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| Communications and Telecom    | <a href="http://www.ti.com/communications">www.ti.com/communications</a>                 |
| Computers and Peripherals     | <a href="http://www.ti.com/computers">www.ti.com/computers</a>                           |
| Consumer Electronics          | <a href="http://www.ti.com/consumer-apps">www.ti.com/consumer-apps</a>                   |
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