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| *Title:* | **High Throughput profile bitstreams for Conformance Testing** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

This document contributes and proposes several bitstreams for conformance testing that comply to the new High Throughput Profiles. These bitstreams are mostly characterized by the use of wavefronts and tiles within the same bitstream. Bug fixes and updates to the HM reference software relating to this work are also included.

# Description

Six (6) new bitstreams that comply to the High Throughput profiles that were recently introduced in the screen content coding (SCC) extension of HEVC. These bitrstreams, exercise a variety of tools and combinations that are not found in other conformance streams. The list of tools is shown in Table 1. The names of the bitstreams, their characteristics, and the tool combinations used are listed in Table 2.

Table : Differentiating tools supported in the proposed new conformance bitstreams

|  |  |  |  |
| --- | --- | --- | --- |
| Tool | Name | syntax | Level |
| A | Wavefront processing | entropy\_coding\_sync\_enabled\_flag | PPS |
| B | Tiles | tiles\_enabled\_flag | PPS |
| C | Cabac Alignment | cabac\_bypass\_alignment\_enabled\_flag | SPS\_EXT |
| D | Extended Precision | extended\_precision\_processing\_flag | SPS\_EXT |
| E | Video Full Range | video\_full\_range\_flag | VUI |

Table 2: Differentiating tools supported in the proposed new conformance bitstreams

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Bitstreams** | **Content Format** | **HT Profile** | **A** | **B** | **C** | **D** | **E** |
| WPP\_AND\_TILE\_10Bit422Test\_HIGHTHROUGHPUT\_444\_10BIT\_RExt\_Apple.bit | 10-bit, 4:2:2 | 4:4:4 10 | 1 | 1 | 0 | 0 | 0 |
| WPP\_AND\_TILE\_AND\_CABAC\_BYPASS\_ALIGN\_0\_HIGHTHROUGHPUT\_444\_14BIT\_RExt\_Apple.bit | 8-bit, 4:2:0 | 4:4:4 14 | 1 | 1 | 0 | 0 | 1 |
| WPP\_AND\_TILE\_AND\_CABAC\_BYPASS\_ALIGN\_1\_HIGHTHROUGHPUT\_444\_14BIT\_RExt\_Apple.bit | 8-bit, 4:2:0 | 4:4:4 14 | 1 | 1 | 1 | 0 | 1 |
| WPP\_AND\_TILE\_AND\_CABAC\_EXT\_PREC\_1\_HIGHTHROUGHPUT\_444\_14BIT\_RExt\_Apple.bit | 8-bit, 4:2:0 | 4:4:4 14 | 1 | 1 | 0 | 1 | 1 |
| WPP\_AND\_TILE\_HIGHTHROUGHPUT\_444\_8BIT\_RExt\_Apple.bit | 8-bit, 4:2:0 | 4:4:4 8 | 1 | 1 | 0 | 0 | 1 |
| WPP\_HIGHTHROUGHPUT\_444\_8BIT\_RExt\_Apple.bit | 8-bit, 4:2:0 | 4:4:4 8 | 1 | 0 | 0 | 0 | 1 |

It should be highlighted that even though these profiles can support 4:4:4 video data and up to 14 bits, the bitstreams we have generated only support 4:2:0 and 4:2:2 formats, and only 8 or 10 bit signals. 4:4:4 format and higher bitdepth bitstreams could be provided in the future.

Finally, a patch file over HM 16.12 that adds profile indicators in the software for the new high throughput profiles is also included.

# Conclusion/Recommendations

New conformance bitstreams based on the new High Throughput profiles that were introduced in the screen content coding extension of HEVC are proposed in this contribution. Additional bitstreams may be provided in the future if requested.

# References

1. ISO/IEC 230082:2015 HEVC Third Edition
2. R. Joshi, S. Liu, G. J. Sullivan, Y.-K. Wang, J. Xu, and Y. Ye, “HEVC Screen Content Coding Draft Text 6”, JCTVC document JCTVC-W1005, San Diego, CA, Jan. 2016

# Patent rights declaration(s)

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