

HEVC Bitstream Analysis

Bitstream filename: NEO_Fire_HDR_HEVC_2160p_5994_Main10_45-100VBR_025



NEO_Fire_HDR_HEVC_2160p_5994_Main10_45-100VBR_025

size (bits)	167,093,784
size (bytes)	20,886,723
begin (byte offset)	0
end (byte offset)	20,886,723
number of access units	180
number of coded video sequences	1

SPS (Sequence Parameter Set)

chroma format	4:2:0
dimensions (luma samples)	3840×2160
bit depth, luma	10
bit depth, chroma	10
CTU size	64×64

VUI (Video Usability Information)

sample aspect ratio	1:1
video format	Unspecified video format
colour primaries	BT.2020
transfer characteristics	SMPTE ST.2084
matrix coefficients	BT.2020 non-constant luminance

Mastering Display Colour Volume SEI

chromaticity coordinates of primary 0	(0.265, 0.69)
chromaticity coordinates of primary 1	(0.15, 0.06)
chromaticity coordinates of primary 2	(0.68, 0.32)
chromaticity coordinates of white point	(0.3127, 0.329)
maximum luminance	1100 cd/m ²
minimum luminance	0 cd/m ²





Unregistered User Data SEI

UUID	427fcc9b-b892-4821-9561-c292e3a1fdf3
user_data_payload_byte values (as ASCII)	ATEME Titan KFE 3.7.1 (4.7.1.1001)









Bitstream Statistics







	minimum	mean	maximum	units
access unit (picture) size	381,456	928,298.8	4,143,880	bits
picture width	3,840	3,840	3,840	luma samples
picture height	2,160	2,160	2,160	luma samples
BitDepthY	10	10	10	bits
BitDepthC	10	10	10	bits
tile columns	2	2	2	
tile rows	2	2	2	
slice segments per picture	1	1	1	
absolute MVD x	0	3.744	1,068.25	luma samples
absolute MVD y	0	3.015	386.25	luma samples
absolute MV x	0	2.659	605	luma samples
absolute MV y	0	2.015	318.25	luma samples
SliceQpY (slice_type=B)	25	26.448	27	
SliceQpY (slice_type=P)	23	23.824	24	
SliceQpY (slice_type=I)	20	20	20	



Slice Statistics

slice_type	by picture area		by bits	
B	80.6%		56.9%	
P	18.9%		40.6%	
I	0.6%		2.5%	



Coding Unit Statistics





coding unit size	by picture area		by bits	
8x8	3%		7.9%	
16x16	15.7%		23.2%	
32x32	44.3%		51.6%	
64x64	37%		17.3%	





CuPredMode	by area		by bits	
MODE_INTER	57.5%		50.7%	
MODE_INTRA	20.8%		48.3%	
MODE_SKIP	21.7%		1%	







cu_transquant_bypass_flag	by area		by bits	
0	100%		100%	
1	0%		0%	

Intra Coding Unit

pcm_flag	by intra area		by intra bits	
0	100%		100%	
1	0%		0%	

PartMode (INTRA)	by intra area		by intra bits	
PART_2Nx2N	99.7%		99.1%	
PART_NxN	0.3%		0.9%	

IntraPredModeY	by intra area	
INTRA_PLANAR	28.5%	
INTRA_DC	66.3%	
INTRA_ANGULAR2	0.1%	
INTRA_ANGULAR3	0%	
INTRA_ANGULAR4	0%	
INTRA_ANGULAR5	0.1%	
INTRA_ANGULAR6	0%	
INTRA_ANGULAR7	0%	
INTRA_ANGULAR8	0.1%	
INTRA_ANGULAR9	0%	
INTRA_ANGULAR10	2%	
INTRA_ANGULAR11	0%	
INTRA_ANGULAR12	0%	
INTRA_ANGULAR13	0.1%	
INTRA_ANGULAR14	0%	
INTRA_ANGULAR15	0%	
INTRA_ANGULAR16	0.1%	
INTRA_ANGULAR17	0%	
INTRA_ANGULAR18	0%	
INTRA_ANGULAR19	0.1%	
INTRA_ANGULAR20	0%	
INTRA_ANGULAR21	0%	
INTRA_ANGULAR22	0.1%	
INTRA_ANGULAR23	0%	
INTRA_ANGULAR24	0%	
INTRA_ANGULAR25	0%	
INTRA_ANGULAR26	2.3%	
INTRA_ANGULAR27	0%	
INTRA_ANGULAR28	0%	
INTRA_ANGULAR29	0.1%	
INTRA_ANGULAR30	0%	
INTRA_ANGULAR31	0%	
INTRA_ANGULAR32	0%	
INTRA_ANGULAR33	0%	
INTRA_ANGULAR34	0%	

IntraPredModeC	by intra area	
IntraPredModeY	79.9%	
INTRA_PLANAR	8%	
INTRA_DC	5.1%	
INTRA_ANGULAR10	3.6%	
INTRA_ANGULAR26	1.9%	
INTRA_ANGULAR24	1.5%	

Inter Coding Unit

cu_skip_flag	by inter area		by inter bits	
0	72.5%		98.1%	
1	27.5%		1.9%	

PartMode (INTER)	by inter area		by inter bits	
PART_2Nx2N	97.1%		92.6%	
PART_2NxN	1.5%		3.8%	
PART_Nx2N	1.4%		3.7%	
PART_NxN	0%		0%	
PART_2NxnU	0%		0%	
PART_2NxnD	0%		0%	
PART_nLx2N	0%		0%	
PART_nRx2N	0%		0%	

Prediction Unit Statistics

merge_idx	by inter area	
merge_flag = 0	25.6%	
0	42.2%	
1	15.6%	
2	8.1%	
3	4.7%	
4	3.8%	



PredMode	by inter area	
L0	16.9%	
L1	7%	
BI	76.1%	







RefIdxL0	by inter area	
unused	7%	
0	79.2%	
1	9.7%	
2	4.1%	


RefIdxL1	by inter area	
unused	16.9%	
0	80.9%	
1	2.3%	

Transform Unit Statistics



Intra Transform Unit Statistics









transform unit size	by intra area		by intra bits	
4x4	1.5%		2.2%	
8x8	6.5%		5.8%	
16x16	27.5%		22%	
32x32	64.5%		62%	

trafoDepth	by intra area		by intra bits	
0	85.2%		77.9%	
1	14.3%		13.7%	
2	0.5%		0.5%	

	picture area	
cbf_luma=1	95%	
cbf_cb=1	54.6%	
cbf_cr=1	48.7%	

Inter Transform Unit Statistics

transform unit size	by inter area		by inter bits	
4x4	3.4%		7.2%	
8x8	2.5%		5.4%	
16x16	6.5%		13.3%	
32x32	58%		52.7%	

trafoDepth	by inter area		by inter bits	
0	24.3%		35.8%	
1	42.8%		37.8%	
2	2.8%		4.7%	
3	0.5%		0.3%	

	picture area	
cbf_luma=1	64.9%	
cbf_cb=1	30.6%	
cbf_cr=1	25.9%	

SAO Statistics

SaoTypeIdx[0]	by picture area	
off	0%	
band	0%	
edge	0%	

SaoTypeIdx[1]	by picture area	
off	0%	
band	0%	
edge	0%	

Syntax Element Bin Statistics

	syntax elements	Decode Decision	Decode Bypass	Decode Terminate	bits	bit distribution histogram
end_of_slice_segment_flag	367200	0	0	367200	3,001,476	
end_of_subset_one_bit	540	0	0	540	0	
sao_merge_up_flag	0	0	0	0	0	
sao_merge_left_flag	0	0	0	0	0	
sao_type_idx_luma	0	0	0	0	0	
sao_type_idx_chroma	0	0	0	0	0	
sao_offset_abs	0	0	0	0	0	
sao_offset_sign	0	0	0	0	0	
sao_band_position	0	0	0	0	0	
sao_eo_class_luma	0	0	0	0	0	
sao_eo_class_chroma	0	0	0	0	0	
split_cu_flag	2.35381e+06	2.35381e+06	0	0	1,830,467.072	
cu_transquant_bypass_flag	0	0	0	0	0	
cu_skip_flag	2.35964e+06	2.35964e+06	0	0	1,325,102.371	
pred_mode_flag	1.65656e+06	1.65656e+06	0	0	1,395,020.363	
part_mode	1.18378e+06	1.25409e+06	0	0	491,419.803	
pcm_flag	0	0	0	0	0	
prev_intra_luma_pred_flag	736913	736913	0	0	185,671.449	
mpm_idx	700142	0	1.11906e+06	0	1,119,055	
rem_intra_luma_pred_mode	36771	0	183855	0	183,855	
intra_chroma_pred_mode	691880	691880	291880	0	688,211.152	
rqt_root_cbf	296028	296028	0	0	101,485.086	
merge_flag	1.06495e+06	1.06495e+06	0	0	852,600.022	
merge_idx	1.51114e+06	1.51114e+06	941120	0	2,330,370.425	
inter_pred_idc	209308	314746	0	0	247,808.082	
ref_idx_l0	161590	191200	0	0	168,203.841	
ref_idx_l1	53501	53501	0	0	41,582.172	
mvp_l0_flag	205132	205132	0	0	182,613.982	
mvp_l1_flag	154708	154708	0	0	143,595.316	
split_transform_flag	3.29509e+06	3.29509e+06	0	0	2,484,006.55	
cbf_luma	4.94129e+06	4.94129e+06	0	0	4,136,955.762	
cbf_cb	2.52253e+06	2.52253e+06	0	0	2,506,559.756	
cbf_cr	2.42695e+06	2.42695e+06	0	0	2,337,861.25	
abs_mvd_greater0_flag	719680	719680	0	0	684,410.18	
abs_mvd_greater1_flag	434103	434103	0	0	279,521.152	
abs_mvd_minus2	362644	0	2.2472e+06	0	2,247,200	
mvd_sign_flag	434103	0	434103	0	434,103	
cu_qp_delta_abs	1.35709e+06	3.08837e+06	200912	0	3,205,190.977	
cu_qp_delta_sign_flag	806628	0	806628	0	806,628	
cu_chroma_qp_offset_flag	0	0	0	0	0	
cu_chroma_qp_offset_idx	0	0	0	0	0	
log2_res_scale_abs_plus1	0	0	0	0	0	
res_scale_sign_flag	0	0	0	0	0	
transform_skip_flag	0	0	0	0	0	
explicit_rdpkm_flag	0	0	0	0	0	
explicit_rdpkm_dir_flag	0	0	0	0	0	
last_sig_coeff_x_prefix	4.63053e+06	1.20647e+07	0	0	9,338,641.878	
last_sig_coeff_y_prefix	4.63053e+06	1.17639e+07	0	0	9,658,702.56	
last_sig_coeff_x_suffix	685150	0	910386	0	910,386	

last_sig_coeff_y_suffix	604742	0	795656	0	795,656	
coded_sub_block_flag	3.049e+06	3.049e+06	0	0	2,718,691.721	
sig_coeff_flag	7.07506e+07	7.07506e+07	0	0	65,386,407.56	█
coeff_abs_level_greater1_flag	2.89192e+07	2.89192e+07	0	0	14,790,640.006	█
coeff_abs_level_greater2_flag	2.26895e+06	2.26895e+06	0	0	1,163,636.56	
coeff_abs_level_remaining	3.29601e+06	0	5.94565e+06	0	5,945,649	
coeff_sign_flag	2.59062e+07	0	2.59062e+07	0	25,906,179	█