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Performance Test

G-ST 3000+ G3

Specifications:

Device type:	G-ST 3000+ G3
CPU:	12th Gen Intel(R) Core(TM) i5-12500
Mainboard:	Kontron K3842-Q1
G-Core:	7.2.0.279
SSD/ HDD:	M.2 SSD 256GB ; HDD: 1TB
Monitor resolution:	1080p
RAM:	1x 16GB DDR5
OS:	Microsoft Windows 10 Enterprise LTSC (21H2)
Graphiccard:	Intel(R) UHD Graphics 770 Version 31.0.101.4091
Date of the test:	20.04.2023

Results:

E4 Viewer Performance:

Resolution	Codec	Desired FPS per Channel	Amount Viewers	CPU Usage in %	Device Band-width in Mbit/s	GPU Decoder Usage	GPU 3D Usage
4K2K	H.264 CCTV	25	12	56,4	138,32	72	60,29
4MP	H.264	25	21	54,33	213,72	86,83	59,33
FullHD	H.264	25	37	90,13	354,57	82,6	71,6
HD	H.264	25	52	83,79	568,8	49,83	66,33
4MP	H.265	25	22	96,33	178,19	54,83	78,83
FullHD	H.265	25	32	86,23	223,81	40,29	68,14
HD	H.265	25	53	87,19	462,97	40,86	69,43

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E4 Database Performance:

Resolution	Codec	Recorded Channels	CPU Usage in %	Device Bandwidth in Mbit/s	GPU 3D Usage
4K2K	H.264 CCTV	147	6,64	944,62	4,25
4MP	H.264	82	6,04	895,9	4,33
FullHD	H.264	101	7,57	923,2	4,67
HD	H.264	75	5,97	832,4	4,33
4MP	H.265	173	3,93	215,95	4,33
FullHD	H.265	173	4,05	207,36	4,33
HD	H.265	173	3,87	261,88	4,5

E4 G-Tect Performance AD:

Resolution	Codec	Analysed Channels AD	CPU usage in % AD	Device Bandwidth in Mbit/s AD	GPU Decoder Usage AD	GPU 3D Usage AD
4K2K	H.264 CCTV	53	46,14	621,26	93,45	65,18
4MP	H.264	32	22,54	353,97	99,82	55
FullHD	H.264	57	33,41	593,88	97,36	59,09
HD	H.264	80	38,63	872,24	67,55	50
4MP	H.265	39	55,96	327,64	93,27	96,45
FullHD	H.265	63	65,7	491,78	80,82	84,27
HD	H.265	71	42,72	633,49	52,27	46,27

E4 G-Tect Performance VMD:

Resolution	Codec	Analysed Channels VMD	CPU usage in % VMD	Device Bandwidth in Mbit/s VMD	GPU Decoder Usage VMD	GPU 3D Usage VMD
4K2K	H.264 CCTV	37	21,31	431,63	100	60
4MP	H.264	32	21,8	359,72	99,64	53,18
FullHD	H.264	58	31,34	621,6	98,18	59,73
HD	H.264	76	34,61	838,52	62,27	45,64
4MP	H.265	38	48,33	330,52	95	94,82
FullHD	H.265	63	61,13	455,95	74,36	81,91
HD	H.265	80	47,72	763,65	59,45	52,27

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E4 G-Tect Performance VMX:

Resolution	Codec	Analysed Channels VMX	CPU usage in % VMX	Device Bandwidth in Mbit/s VMX	GPU Decoder Usage VMX	GPU 3D Usage VMX
4K2K	H.264 CCTV	42	76,56	496,72	90,18	65
4MP	H.264	30	30,14	320,13	97,09	55,27
FullHD	H.264	50	49,72	519,78	96,73	59,36
HD	H.264	78	86,92	877,7	79,6	65,5
4MP	H.265	31	79,46	251,76	90,7	94,8
FullHD	H.265	48	83,6	362,05	66,2	76,5
HD	H.265	57	62,21	536,94	47,27	44

Type: Limit Performance Test

Reason: Search for the limits of the device until the expected frame rate is no longer reached.Live streams from GBF reference files are used.

Test definition: Tested in a separate test environment with separate network and imagesource with new GBF reference files.

Aim: Determine the maximum number of cameras that can be displayed live, being recordedin the database or analyzed with the G-Tect service (AD, VMD, VMX) WITHOUT database storage.

Description: SuT-Limit Test; In this test case, the maximum number of channels per device is searched for. It is determined how many channels can be viewed live and how many channelscan be recorded.

All tests are performed exclusively at 25 FPS, since it was found in comparison tests that the system behaves as follows when the frame rate is halved:

- GView: at 12.5 FPS always double the number of channels
- Database: at 12.5 FPS always double the number of channels
- GTect: with AD and VMD at 12.5 FPS always double the number of channels
- GTect: with AD and VMX always 8 images are analyzed with CCTV ➜ same number of channels
- GTect: with AD and VMX always 8 images are analyzed with CCTV ➜ same number of channels

For GView and G-Tect, only the "Outdoor Lively" scenario was used because it is the most complex and the smallest number of channels could be connected or analyzed.

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Procedure:

GView: The program starts with 16 channels. If the expected frame rate is reached, another 16channels are activated. This happens as long as the frame rate is reached.

If this is no longer the case, 8 channels are deleted again. If this is reached, 4 more channelsare switched on again and so on. This happens until the maximum frame rate is reached.

Database: It starts with 128 active channels. If the frame rate is reached, another 64 channels are activated in the setup. If the rate for all 192 channels is then reached the test is finished.
If the frame rate for the 192 channels is not reached, 32 channels are deactivated again, and soon.

G-Tect: AD, VMD and VMX are tested separately. No combination is used.

The program starts with 16 active channels. When the expected frame rate is reached, another 16 channels are activated. This happens as long as the frame rate is reached.

If this is no longer the case, 8 channels are deactivated. If this is reached, 4 more channels are activated again and so on. This happens until the maximum frame rate is reached.

A comparison of the G-Tect performance tests with active recording with the results without recording has shown that this has no effect on the performance of the G-Tect service.
Therefore, no recording is active in this test.