

## Performance Test

### G-ST 3000+ G3

#### Specifications:

Device type:	G-ST 3000+ G3
CPU:	12th Gen Intel(R) Core(TM) i3-12100
Mainboard:	Kontron K3842-Q2
G-Core:	7.2.0.286
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 31.0.101.4255
Date of the test:	20.04.2023

#### Results:

##### E4 Viewer Performance:

Resolution	Codec	Desired FPS per Channel	Amount Viewers	CPU Usage in %	Device Bandwidth in Mbit/s	GPU Decoder Usage	GPU 3D Usage
4K2K	H.264 CCTV	25	9	32,23	108,34	94,43	33,14
4MP	H.264	25	16	37,76	185,83	96,67	36,5
FullHD	H.264	25	29	56,13	292,37	97,43	45,86
HD	H.264	25	47	99,81	533,85	79,4	54
4MP	H.265	25	17	72,7	147	71,29	52,29
FullHD	H.265	25	32	98,32	221,41	73,67	61,5
HD	H.265	25	47	94,64	432,86	70,67	59

## E4 Database Performance:

Resolution	Codec	Recorded Channels	CPU Usage in %	Device Bandwidth in Mbit/s	GPU 3D Usage
4K2K	H.264 CCTV	122	30,34	784,93	4,5
4MP	H.264	80	19,96	901,26	4,5
FullHD	H.264	89	16,78	863,12	4,33
HD	H.264	86	31,84	946,3	4,33
4MP	H.265	128	29,89	231,2	4,67
FullHD	H.265	128	30,54	203,75	4,5
HD	H.265	128	30,85	254,81	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	36	42,68	393,63	99,27	32,73
4MP	H.264	21	41,27	234,43	100	28,55
FullHD	H.264	38	47	376,37	100	31,45
HD	H.264	71	64,37	809,11	100	36,18
4MP	H.265	30	53,03	276,74	100	47,64
FullHD	H.265	51	61,78	386,82	99	48,18
HD	H.265	63	61,38	578,41	89,18	33,55

## 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	23	38,74	269,87	100	31,27
4MP	H.264	21	39,39	235,91	100	28,45
FullHD	H.264	38	43,87	417,84	100	31,18
HD	H.264	71	60,87	815,04	98,45	36,55
4MP	H.265	30	51,41	246,34	99,82	47,45
FullHD	H.265	51	60,12	360,11	98,09	48,73
HD	H.265	64	61,27	607,59	90,55	33,55

## 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	33	74,22	386,1	100	36,91
4MP	H.264	20	44,92	217,83	100	29,09
FullHD	H.264	36	56,27	398,29	99,91	31,73
HD	H.264	63	84,12	713,18	99,82	37,55
4MP	H.265	27	79,12	252,14	99,55	53,55
FullHD	H.265	44	89,56	336,91	98,36	54,45
HD	H.265	61	90,88	560,08	92,5	42,2

### **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 recorded in 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 channels can 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.

**Procedure:**

**GView:** The program starts with 16 channels. If 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 deleted again. If this is reached, 4 more channels are 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.