

УТВЕРЖДАЮ

Генеральный директор ООО «Алнисофт»



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М.П.

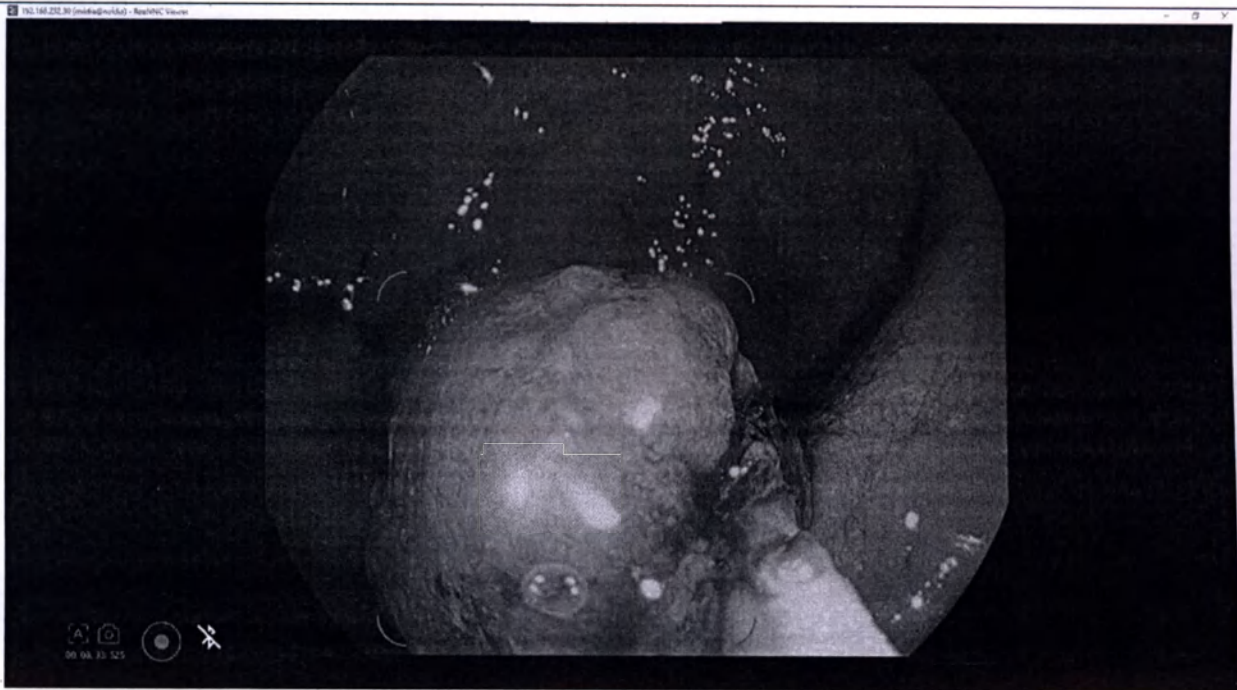
2023 года

Фотографические изображения изделия

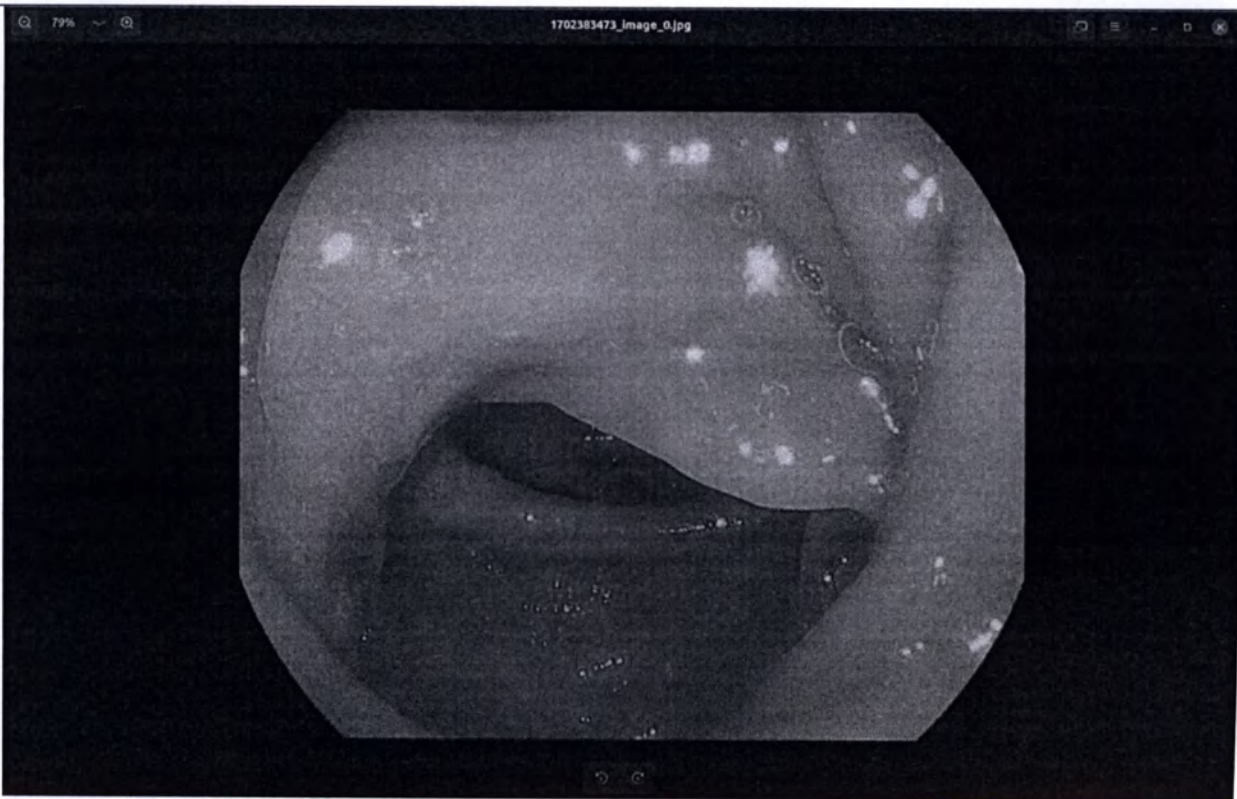
**Программное обеспечение ArtInCol для анализа видеопотока при
эндоскопических исследованиях**

Версия: 1.1 от 28.10.2023

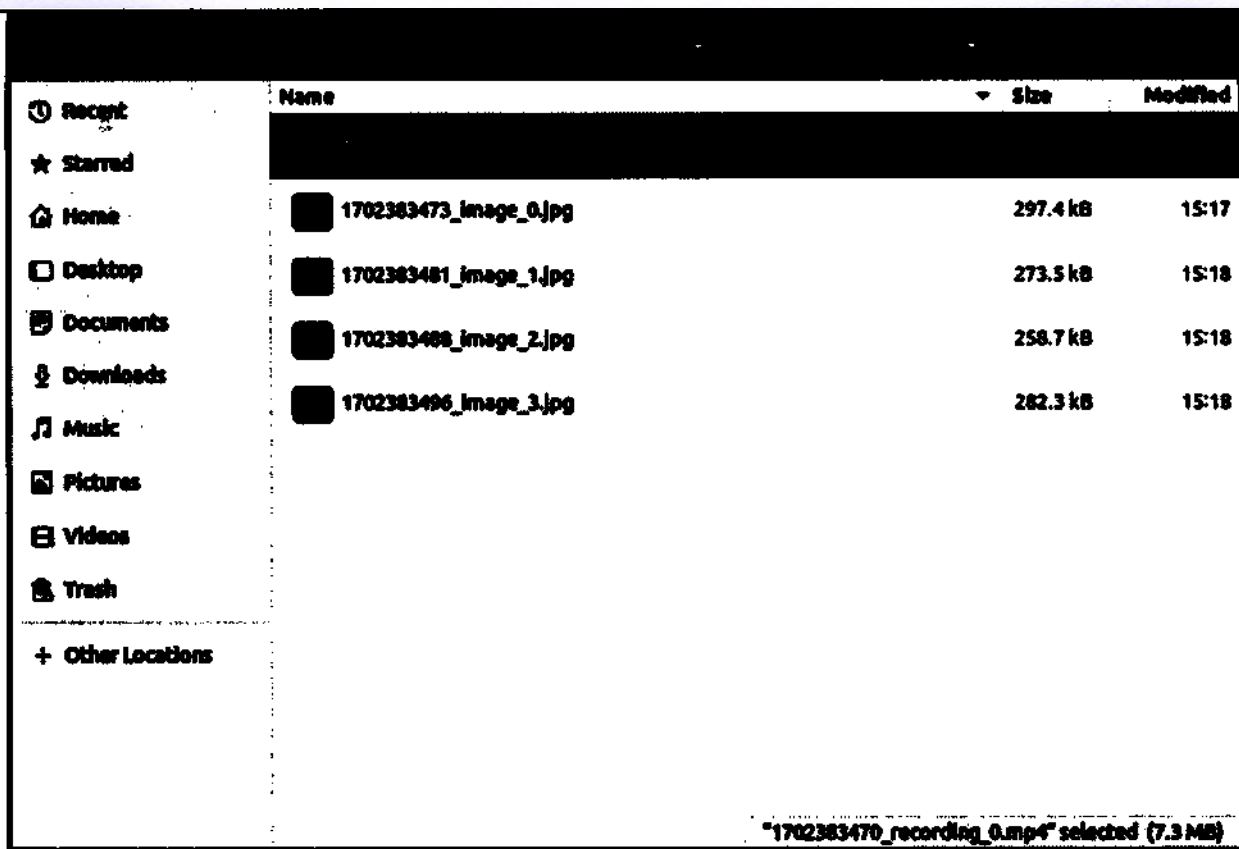
Разработчик: Общество с ограниченной ответственностью «Алнисофт»



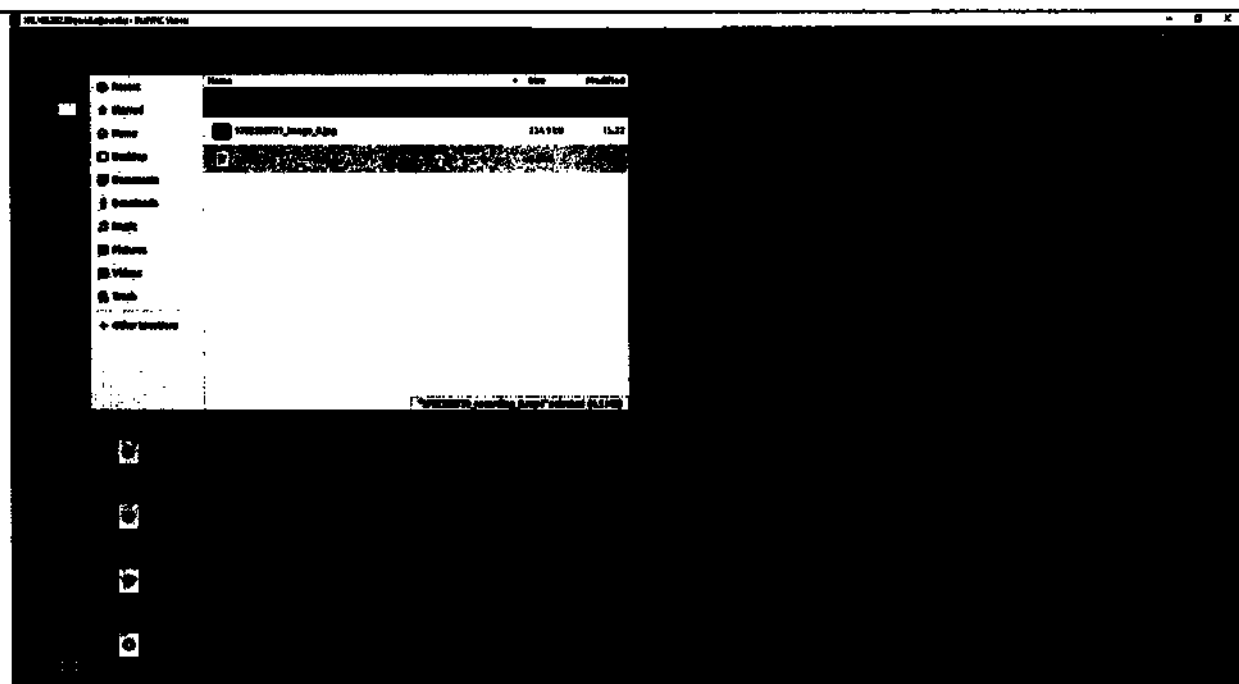
Изображение 1



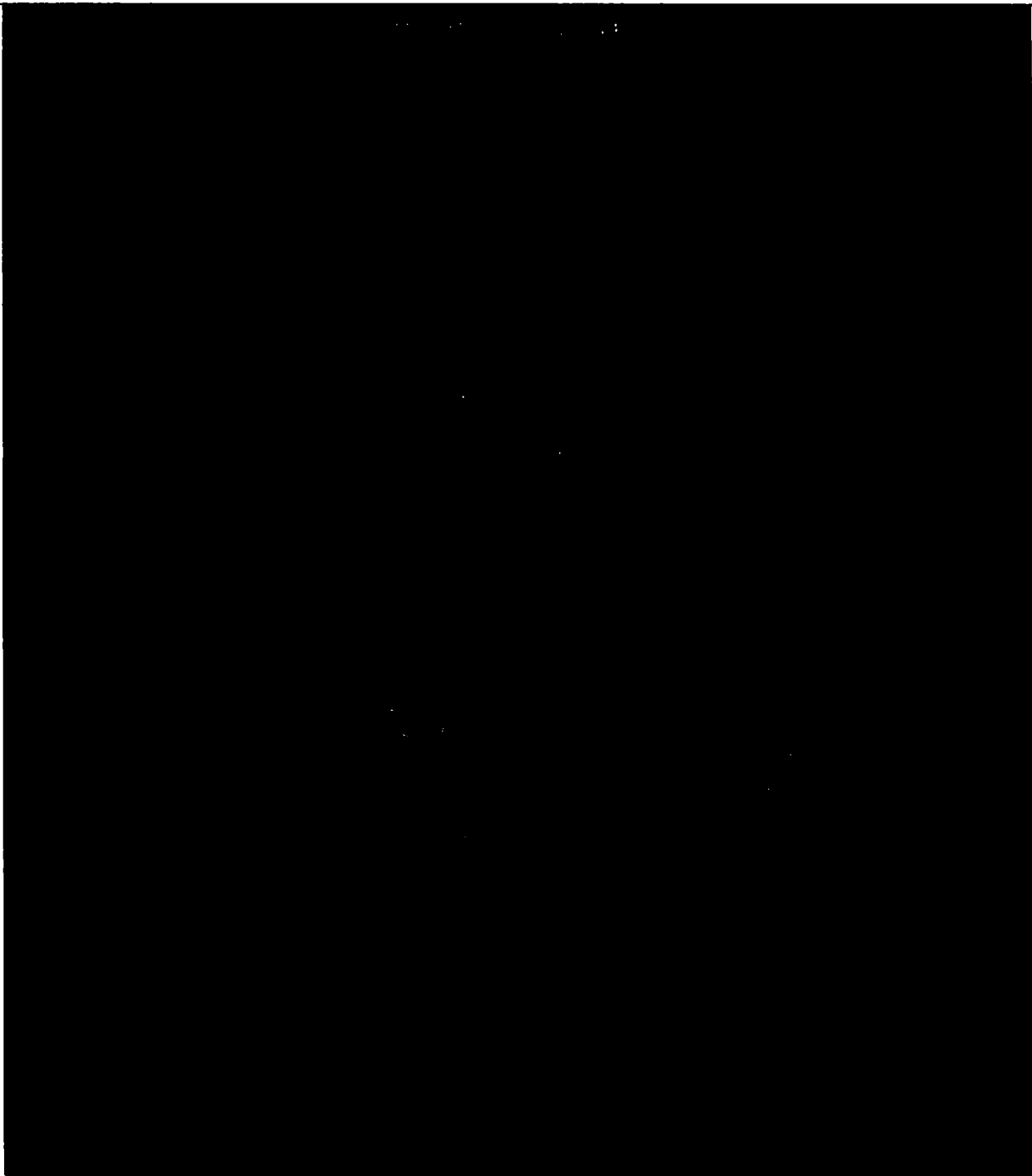
Изображение 2



Изображение 3



Изображение 4



Изображение 5

```
Open report.txt Save
~/hardware_bin/recordings/2023_12_12_15_22_13

1
2 "cropParams": {
3   "bottom": 0,
4   "left": 300,
5   "right": 300,
6   "top": 0
7 },
8 "duration": 19800,
9 "equipment": {
10   "description": "Olympus CV-190"
11 },
12 "fileName": "1702383733_recording_0.mp4",
13 "systemLabels": [
14   {
15     "bbox": {
16       "x0": 788,
17       "x1": 960,
18       "y0": 461,
19       "y1": 741
20     },
21     "timestamp": 200
22   },
23   {
24     "bbox": {
25       "x0": 1001,
26       "x1": 1205,
27       "y0": 529,
28       "y1": 807
29     },
30     "timestamp": 440
31   },
32   {
33     "bbox": {
34       "x0": 980,
35       "x1": 1186,
36       "y0": 793,
37       "y1": 1016
38     },
39     "timestamp": 1040
40   },
41   {
42     "bbox": {
43       "x0": 943,
44       "x1": 1079,
45       "y0": 467,
46       "y1": 620
47     },
48     "timestamp": 2520
49   },
50   {
51     "bbox": {
52       "x0": 944,
53       "x1": 1081,
54       "y0": 469,
```

Изображение 6

```

90         "y0": 161,
91         "y1": 332
92     },
93     "timestamp": 8960
94 },
95 {
96     "bbox": {
97         "x0": 834,
98         "x1": 1010,
99         "y0": 160,
100        "y1": 332
101    },
102    "timestamp": 9000
103 },
104 {
105     "bbox": {
106         "x0": 1118,
107         "x1": 1226,
108         "y0": 536,
109         "y1": 671
110    },
111    "timestamp": 9520
112 },
113 {
114     "bbox": {
115         "x0": 979,
116         "x1": 1054,
117         "y0": 473,
118         "y1": 574
119    },
120    "timestamp": 10440
121 },
122 {
123     "bbox": {
124         "x0": 335,
125         "x1": 1505,
126         "y0": 67,
127         "y1": 951
128    },
129    "timestamp": 11640
130 },
131 {
132     "bbox": {
133         "x0": 1189,
134         "x1": 1533,
135         "y0": 146,
136         "y1": 509
137    },
138    "timestamp": 11680
139 },
140 {
141     "bbox": {
142         "x0": 335,

```

Plain Text ▾ Tab Width: 8 ▾ Ln 13, Col 22 ▾ INS

Изображение 7

Изображения 1-7 – Результаты работы ПО

```

nvidia@nvidia: ~/hardware_bin
nvidia@nvidia: ~/hardware_bin$ ./articol_fw
Программное обеспечение ArtInCol для анализа видеопотока при эндоскопических исследованиях.
Версия:1.1, дата выпуска: 28.10.2023.
Разработчик: Общество с ограниченной ответственностью «Алнисофт», ОГРН 1117746400480. Адрес: 197040, г. Санкт-Петербург, пр. Каменноостровский, дом 11, корпус 2, литер А, помещение 87(215).
hash=b6d75e6
XintThreads success
license to sign [DEFAULT]trent-signatureAFBV-UATA-AAA=lic_ver200valid-to2024-06-08]
license OK
8.2.1.9
[Image] loaded 'res/boxes_on.png' (32x32, 4 channels)
[Image] loaded 'res/boxes_off.png' (32x32, 4 channels)
[Image] loaded 'res/recording_on.png' (64x64, 4 channels)
[Image] loaded 'res/recording_off.png' (64x64, 4 channels)
[Image] loaded 'res/screenshot_active.png' (34x32, 4 channels)
[Image] loaded 'res/screenshot_idle.png' (34x32, 4 channels)
[Image] loaded 'res/bluetooth_on.png' (48x48, 4 channels)
[Image] loaded 'res/bluetooth_off.png' (48x48, 4 channels)
Default mode sync
2023-12-12 15:09:18,128 - DetectionRTInference - INFO - Batch size is configured: 1
2023-12-12 15:09:18,170 - DetectionRTInference - INFO - CUDA_MODULE_LOADING=LAZY is enabled.
[TensorRT] INFO: Loaded engine size: 15 MiB
[TensorRT] INFO: [MemUsageChange] TensorRT-managed allocation in engine deserialization: CPU +0, GPU +13, now: CPU 0, GPU 13 (MiB)
2023-12-12 15:09:18,540 - DetectionRTInference - INFO - Model best_detection.engine is loaded successfully.
[TensorRT] INFO: [MemUsageChange] TensorRT-managed allocation in IExecutionContext creation: CPU +0, GPU +17, now: CPU 0, GPU 30 (MiB)
[IMPORTANT] MLInteractor init success
[IMPORTANT] PostProcessor init success
resizedWidth=640
resizedHeight=524
horizontalLetterBoxSize=0
verticalLetterBoxSize=58
finalWidth=640
finalHeight=640
[gstreamer] initialized gstreamer, version 1.16.3.0
[gstreamer] gstCamera -- attempting to create device v4l2:///dev/video0
[gstreamer] gstCamera -- found v4l2 device: U-TAP 00K0613517: UT-VID 00K06
[gstreamer] v4l2-proplist, device.path=(string)/dev/video0, udev-probed=(boolean>false, device.api=(string)v4l2, v4l2.device.driver=(string)uvcv
ideo, v4l2.device.card=(string)U-TAP\ 00K0613517: UT-VID\ 00K06", v4l2.device.bus_info=(string)usb-3610000.xhci-2, v4l2.device.version=(uint)
330344, v4l2.device.capabilities=(uint)2225078273, v4l2.device.device_caps=(uint)69200017;
[gstreamer] gstCamera -- found 16 caps for v4l2 device /dev/video0
[gstreamer] [0] video/x-raw, format=(string)YUY2, width=(int)1920, height=(int)1080, pixel-aspect-ratio=(fraction)1/1, framerate=(fraction){ 60/
1, 7013/117, 50/1, 30/1, 2997/100, 25/1, 15/1, 15/2 };
[gstreamer] [1] video/x-raw, format=(string)YUY2, width=(int)1440, height=(int)1080, pixel-aspect-ratio=(fraction)1/1, framerate=(fraction){ 60/
1, 7013/117, 50/1, 30/1, 2997/100, 25/1, 15/1, 15/2 };
[gstreamer] [2] video/x-raw, format=(string)YUY2, width=(int)1280, height=(int)720, pixel-aspect-ratio=(fraction)1/1, framerate=(fraction){ 60/1
, 7013/117, 50/1, 30/1, 2997/100, 25/1, 15/1, 15/2 };
[gstreamer] [3] video/x-raw, format=(string)YUY2, width=(int)1024, height=(int)576, pixel-aspect-ratio=(fraction)1/1, framerate=(fraction){ 60/1

```

Изображение 8

```

[gstreamer] gstreamer changed state from READY to PAUSED ==> capsfilter0
[gstreamer] gstreamer stream status CREATE ==> src
[gstreamer] gstreamer changed state from READY to PAUSED ==> v4l2src0
[gstreamer] gstreamer changed state from READY to PAUSED ==> pipeline0
[gstreamer] gstreamer stream status ENTER ==> src
[gstreamer] gstreamer message new-clock ==> pipeline0
[gstreamer] gstreamer changed state from PAUSED to PLAYING ==> capsfilter0
[gstreamer] gstreamer changed state from PAUSED to PLAYING ==> v4l2src0
[gstreamer] gstreamer message stream-start ==> pipeline0
[gstreamer] gstCamera -- onPreRoll
[gstreamer] gstBufferManager recieve caps: video/x-raw, format=(string)YUY2, width=(int)1920, height=(int)1080, framerate=(fraction)60/1, pixel
-aspect-ratio=(fraction)1/1, interlace-mode=(string)progressive
[gstreamer] gstBufferManager -- recieved first frame, coded-raw format=yuyv width=1920 height=1080 size=4147200
[cuda] allocated 4 ring buffers (4147200 bytes each, 16588800 bytes total)
[cuda] allocated 4 ring buffers (8 bytes each, 32 bytes total)
[gstreamer] gstreamer changed state from READY to PAUSED ==> mysink
[gstreamer] gstreamer message async-done ==> pipeline0
[gstreamer] gstreamer changed state from PAUSED to PLAYING ==> mysink
[gstreamer] gstreamer changed state from PAUSED to PLAYING ==> pipeline0
[cuda] allocated 4 ring buffers (6220800 bytes each, 24883200 bytes total)
[OpenGL] creating 1920x1080 texture (GL_RGBA format, 6220800 bytes)
[cuda] registered openGL texture for interop access (1920x1080, GL_RGBA, 6220800 bytes)
CBFF7E = 136

```

Изображение 9

```

[TensorRT] INFO: [MemUsageChange] TensorRT-managed allocation in IExecutionContext creation: CPU +0, GPU +17, now: CPU 0, GPU 30 (MiB)
[IMPORTANT] MLInteractor init success
[IMPORTANT] PostProcessor init success
resizedWidth=640
resizedHeight=524
horizontalLetterBoxSize=0

```

Изображение 10

```

[IMPORTANT] Camera opened successfully

```

Изображение 11

```

Detected 1 CUDA Capable device(s)

Device 0: "Orin"
  CUDA Driver Version / Runtime Version      11.4 / 11.4
  CUDA Capability Major/Minor version number: 8.7
  Total amount of global memory:              30588 MBytes (32073932800 bytes)
  (014) Multiprocessors, (128) CUDA Cores/MP: 1792 CUDA Cores
  GPU Max Clock rate:                        930 MHz (0.93 GHz)
  Memory Clock rate:                         930 Mhz
  Memory Bus Width:                          128-bit
  L2 Cache Size:                             4194304 bytes
  Maximum Texture Dimension Size (x,y,z)      1D=(131072), 2D=(131072, 65536), 3D=(16384, 16384, 16384)
  Maximum Layered 1D Texture Size, (num) layers 1D=(32768), 2048 layers
  Maximum Layered 2D Texture Size, (num) layers 2D=(32768, 32768), 2048 layers
  Total amount of constant memory:             65536 bytes
  Total amount of shared memory per block:     49152 bytes
  Total shared memory per multiprocessor:      167936 bytes
  Total number of registers available per block: 65536
  Warp size:                                  32
  Maximum number of threads per multiprocessor: 1536
  Maximum number of threads per block:         1024
  Max dimension size of a thread block (x,y,z): (1024, 1024, 64)
  Max dimension size of a grid size (x,y,z): (2147483647, 65535, 65535)
  Maximum memory pitch:                       2147483647 bytes
  Texture alignment:                          512 bytes
  Concurrent copy and kernel execution:        Yes with 2 copy engine(s)
  Run time limit on kernels:                   No
  Integrated GPU sharing Host Memory:          Yes
  Support host page-locked memory mapping:     Yes
  Alignment requirement for Surfaces:          Yes
  Device has ECC support:                      Disabled
  Device supports Unified Addressing (UVA):     Yes
  Device supports Managed Memory:              Yes
  Device supports Compute Preemption:          Yes
  Supports Cooperative Kernel Launch:          Yes
  Supports MultiDevice Co-op Kernel Launch:    Yes
  Device PCI Domain ID / Bus ID / location ID: 0 / 0 / 0
  Compute Mode:
    < Default (multiple host threads can use ::cudaSetDevice() with device simultaneously) >

deviceQuery, CUDA Driver = CUDART, CUDA Driver Version = 11.4, CUDA Runtime Version = 11.4, NumDevs = 1
Result = PASS

```

Изображение 12

```

nvidia@nvidia:/usr/local/cuda/samples/1_Utilities/deviceQuery$
nvidia@nvidia:/usr/local/cuda/samples/1_Utilities/deviceQuery$ lscpu

Architecture:          aarch64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                8
On-line CPU(s) list:   0-7
Thread(s) per core:    1
Core(s) per socket:    8
Socket(s):             1
Vendor ID:             ARM
Model:                 1
Model name:            ARMv8 Processor rev 1 (v8l)
Stepping:              r0p1
CPU max MHz:           2188.8000
CPU min MHz:           115.2000
BogoMIPS:              62.50
L1d cache:             512 KiB
L1i cache:             512 KiB
L2 cache:              2 MiB
L3 cache:              4 MiB
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:     Not affected
Vulnerability Mds:      Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; __user pointer sanitization
Vulnerability Spectre v2: Not affected
Vulnerability Srbds:     Not affected
Vulnerability Tsx async abort: Not affected
Flags:                  fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp cpuid asimdrrm lrcpc dcpo
                        p asimddp uscat ilrcpc flagm

```

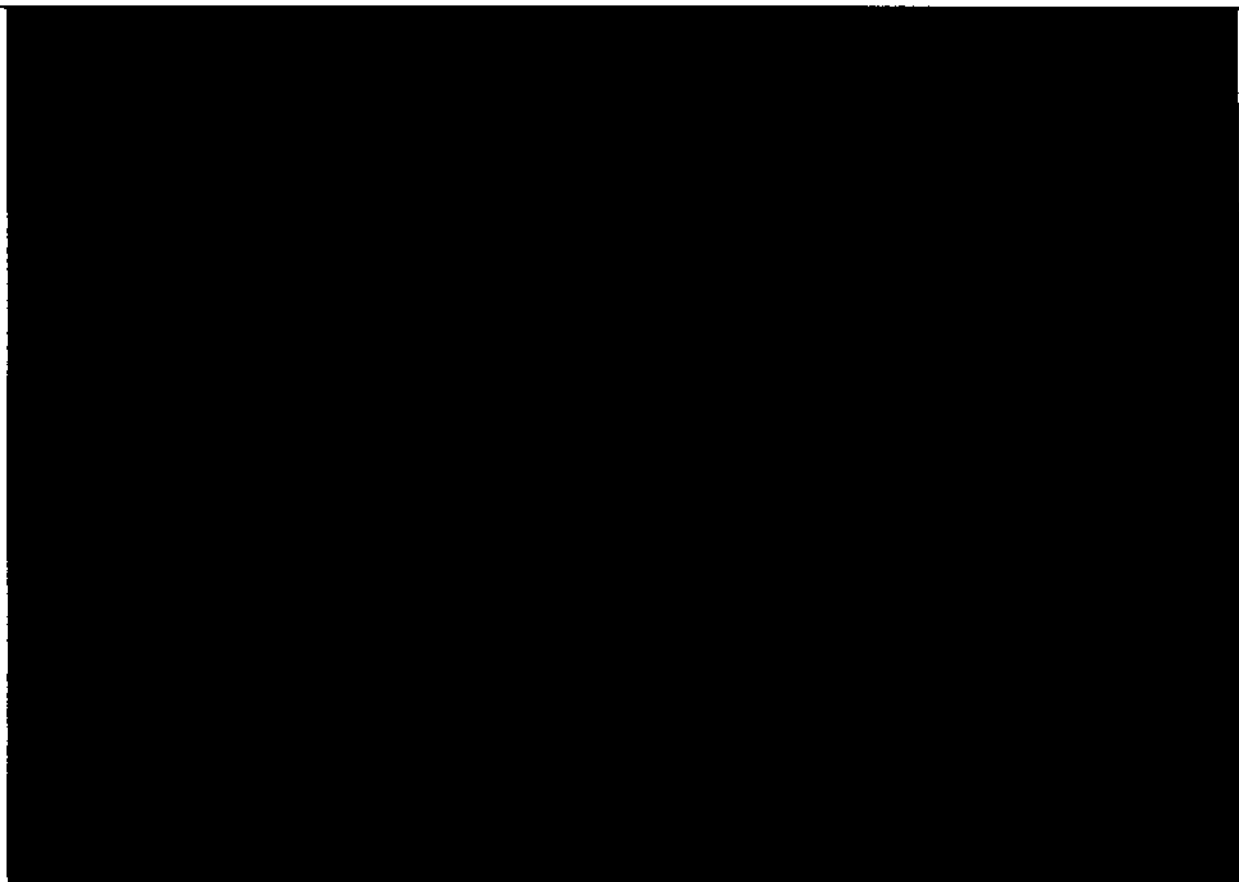
Изображение 13

```

p asimddp uscat ilrcpc flagm
nvidia@nvidia:/usr/local/cuda/samples/1_Utilities/deviceQuery$ dpkg -l | grep -i 'jetpack'
ii  libnvidia-container0:arm64      0.11.0+jetpack      arm64      NVIDIA container runtime
      library
ii  nvidia-jetpack                  5.1.1-b56            arm64      NVIDIA Jetpack Meta Pack
age
ii  nvidia-jetpack-dev              5.1.1-b56            arm64      NVIDIA Jetpack dev Meta
Package
ii  nvidia-jetpack-runtime          5.1.1-b56            arm64      NVIDIA Jetpack runtime M
eta Package
nvidia@nvidia:/usr/local/cuda/samples/1_Utilities/deviceQuery$

```

Изображение 14



Изображение 15

Изображения 8-15 – логи операционной системы и ПО

В настоящем документе прошито и пронумеровано
9 (девять) листа(ов).
Генеральный директор ООО «Алнисофт»
Азаров А.С.

