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LAMPIRAN

7.1 Sourcede Program

7.1.1 ARM Prosesor

```
import os
os.getpid()

# Load filter2D + dilate overlay
from pynq import Overlay
bareHDMI = Overlay("/usr/local/lib/python3.6/dist-packages/
    pynq_cv/overlays/xv2Filter2DDilate.bit")
bareHDMI.download()
import pynq_cv.overlays.xv2Filter2DDilate as xv2

# Load xlnk memory mangager
from pynq import Xlnk
Xlnk.set_allocator_library("/usr/local/lib/python3.6/
    dist-packages/pynq_cv/overlays/xv2Filter2DDilate.so")
mem_manager = Xlnk()

hdmi_in = bareHDMI.video.hdmi_in
hdmi_out = bareHDMI.video.hdmi_out

mymode = hdmi_in.mode
print("My mode: "+str(mymode))

height = hdmi_in.mode.height
width = hdmi_in.mode.width
bpp = hdmi_in.mode.bits_per_pixel

hdmi_in.tie(hdmi_out)
```

```
import numpy as np
import cv2
import time

kernel = {
        'average blur': np.array([
            [1.0, 1.0, 1.0],
            [1.0, 1.0, 1.0],
            [1.0, 1.0, 1.0]],np.float32)/9,
        'gaussian blur': np.array([
            [1.0, 2.0, 1.0],
            [2.0, 4.0, 2.0],
            [1.0, 2.0, 1.0]],np.float32)/16,
        'sobel ver': np.array([
            [1.0,0.0,-1.0],
            [2.0,0.0,-2.0],
            [1.0,0.0,-1.0]],np.float32),
        'sobel hor': np.array([
            [1.0,2.0,1.0],
            [0.0,0.0,0.0],
            [-1.0,-2.0,-1.0]],np.float32),
        'laplacian': np.array([
            [0.0, 1.0, 0],
            [1.0, -4, 1.0],
            [0, 1.0, 0.0]],np.float32),
        'sharpen': np.array([
            [-1,-1, -1],
            [-1, 9, -1],
            [-1, -1, -1]],np.float32),
}

kernel_name = 'sobel hor'
numberOfIterations=85
```

```
startSW=time.time()
for i in range(numberOfIterations):
    inframe = hdmi_in.readframe()
    outframe = hdmi_out.newframe()
    cv2.filter2D(inframe, -1, kernel.get(kernel_name),dst=outframe,
        borderType=cv2.BORDER_CONSTANT) #filter2D on ARM
    hdmi_out.writeframe(outframe)
stopSW=time.time()
print("Start SW loop = ", (stopSW - startSW))
print("SW frames per second: ",
    ((numberOfIterations) / (stopSW - startSW)))

hdmi_out.close()
hdmi_in.close()
```

7.1.2 FPGA Prosesor

```
import os
os.getpid()

# Load filter2D + dilate overlay
from pynq import Overlay
bareHDMI = Overlay("/usr/local/lib/python3.6/dist-packages/
    pynq_cv/overlays/xv2Filter2DDilate.bit")
bareHDMI.download()
import pynq_cv.overlays.xv2Filter2DDilate as xv2

# Load xlnk memory mangager
from pynq import Xlnk
Xlnk.set_allocator_library("/usr/local/lib/python3.6/
    dist-packages/pynq_cv/overlays/xv2Filter2DDilate.so")
mem_manager = Xlnk()
```

```
hdmi_in = bareHDMI.video.hdmi_in
hdmi_out = bareHDMI.video.hdmi_out

from pynq.lib.video import *
hdmi_in.configure(PIXEL_GRAY)
hdmi_out.configure(hdmi_in.mode)

hdmi_in.cacheable_frames = False
hdmi_out.cacheable_frames = False

hdmi_in.start()
hdmi_out.start()

mymode = hdmi_in.mode
print("My mode: "+str(mymode))

height = hdmi_in.mode.height
width = hdmi_in.mode.width
bpp = hdmi_in.mode.bits_per_pixel

hdmi_in.tie(hdmi_out)

import numpy as np
import time

dstSW = np.ones((height,width),np.uint8);
xFdst = mem_manager.cma_array((height,width),np.uint8)

kernel = {
       'average blur': np.array([
           [1.0, 1.0, 1.0],
           [1.0, 1.0, 1.0],
```

```
            [1.0, 1.0, 1.0]],np.float32)/9,
        'gaussian blur': np.array([
            [1.0, 2.0, 1.0],
            [2.0, 4.0, 2.0],
            [1.0, 2.0, 1.0]],np.float32)/16,
        'sobel ver': np.array([
            [1.0,0.0,-1.0],
            [2.0,0.0,-2.0],
            [1.0,0.0,-1.0]],np.float32),
        'sobel hor': np.array([
            [1.0,2.0,1.0],
            [0.0,0.0,0.0],
            [-1.0,-2.0,-1.0]],np.float32),
        'laplacian': np.array([
            [0.0, 1.0, 0],
            [1.0, -4, 1.0],
            [0, 1.0, 0.0]],np.float32),
        'sharpen': np.array([
            [-1,-1, -1],
            [-1, 9, -1],
            [-1, -1, -1]],np.float32),
}

kernel_name = 'sharpen'
numberOfIterations=300

startPL=time.time()
for i in range(numberOfIterations):
    inframe = hdmi_in.readframe()
    outframe = hdmi_out.newframe()
    xv2.filter2D(inframe, -1, kernel.get(kernel_name),
        dst=outframe,borderType=cv2.BORDER_CONSTANT)
    hdmi_out.writeframe(outframe)
```

```
stopPL=time.time()
print("Start HW loop = ", (stopPL - startPL))
print("PL frames per second: ",
    ((numberOfIterations) / (stopPL - startPL)))

hdmi_out.close()
hdmi_in.close()
```

7.2 Data Hasil Percobaan Waktu Komputasi dan FPS

7.2.1 Average Blur

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
50	8.024973154	6.230550438	0.821577311	60.85854533
50	7.99996233	6.25002943	0.823753595	60.69776239
50	7.998621464	6.251077167	0.82895875	60.31663218
50	7.993776083	6.254866221	0.822452068	60.79381635
50	8.000727654	6.249431572	0.821060658	60.89684062
200	32.04833198	6.240574397	3.320029736	60.24042431
200	31.9667685	6.256497274	3.321809292	60.20815237
200	31.97968745	6.253969814	3.329262733	60.07336038
200	31.99306297	6.251355182	3.325505972	60.14122413
200	31.96172857	6.257483839	3.331018209	60.04170119

7.2.2 Gaussian Blur

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
50	8.001603127	6.248747808	0.8199687	60.9779373
50	7.993735313	6.254898122	0.835051775	59.87652682
50	7.99848032	6.251187476	0.826747656	60.47794589
50	8.005704403	6.245546611	0.829063416	60.30901746
50	7.993592978	6.255009498	0.826093435	60.5258411

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
200	31.97753382	6.254391009	3.326043844	60.13149837
200	31.97605824	6.254679625	3.326021433	60.13190355
200	31.97065854	6.255736013	3.321739435	60.20941856
200	31.96669817	6.25651104	3.325276613	60.14537233
200	32.00695395	6.248642101	3.327677488	60.10197824

7.2.3 Laplacian

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
50	6.254891157	7.993744215	0.82506156	60.60153865
50	6.168808699	8.105292682	0.826088667	60.52619047
50	6.242358208	8.009793468	0.822906017	60.76027997
50	6.161360025	8.11509144	0.82921052	60.29831847
50	6.227425814	8.028999702	0.83224082	60.07876423
200	24.89130092	8.034935605	3.326535225	60.12261602
200	24.88935256	8.035564586	3.317910194	60.27890699
200	24.87290311	8.040878828	3.316281796	60.30850583
200	24.86412835	8.043716521	3.330517769	60.050723
200	24.78199816	8.070374258	3.327522278	60.10478167

7.2.4 Sharpening

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
50	8.043478489	6.21621604	0.830551624	60.20095384
50	8.045930862	6.214321358	0.824851274	60.61698823
50	8.042553186	6.216931221	0.825832129	60.54499247
50	8.034646034	6.223049502	0.820035696	60.9729555
50	8.040353775	6.218631841	0.82484889	60.61716344
200	32.23359871	6.204705897	3.323871374	60.1708001
200	32.25315762	6.20094325	3.324242353	60.16408515
200	32.30215144	6.191538058	3.328672647	60.08400981

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
200	32.21903443	6.207510669	3.334614992	59.97693901
200	32.23735976	6.20398201	3.332532644	60.01441587

7.2.5 Sobel Horizontal

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
50	6.6412673	7.52868357	0.824651003	60.63170944
50	6.666188955	7.500537464	0.824263334	60.66022583
50	6.635772943	7.534917247	0.819379091	61.02181583
50	6.6434834	7.526172188	0.822708607	60.77485952
50	6.645629168	7.523742108	0.828567982	60.34507862
200	26.39209056	7.578027953	3.319519758	60.24967904
200	26.52648592	7.539634183	3.320359707	60.23443773
200	26.5723536	7.526619697	3.328252077	60.09160225
200	26.48957157	7.550140985	3.328671694	60.08402702
200	26.50646019	7.545330405	3.323920965	60.16990238

7.2.6 Sobel Vertical

Frame	ARM-time(s)	ARM-fps	FPGA-time(s)	FPGA-fps
50	6.715774775	7.445157361	0.81825161	61.10589872
50	6.589876413	7.587395706	0.825090408	60.59941977
50	6.717816114	7.442895005	0.824631214	60.63316443
50	6.746128082	7.411658864	0.82959795	60.27015858
50	6.713373661	7.447820206	0.820227385	60.95870601
200	26.9272964	7.42740738	3.325917721	60.13377864
200	26.74835086	7.477096478	3.325239897	60.14603644
200	26.82612038	7.45542021	3.324659824	60.15653046
200	26.8522346	7.448169695	3.315615892	60.3206181
200	26.85582018	7.447175274	3.328870773	60.08043376

7.3 Data Hasil Percobaan ARM Average Blur

7.3.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:48.28
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:48.78
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:49.29
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:49.79
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:50.30
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:50.80
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:51.30
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:51.80
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:52.30
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:52.81
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:53.31
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:53.81
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:54.31
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:54.81
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:55.32
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:55.82
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:56.32
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:56.83
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:57.33
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:57.83
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:58.33
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:58.83
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:59.34
1842	root	20	0	403380	134772	54944	R	100.0	26.5	3:59.84
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:00.35
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:00.85
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:01.35

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:01.85
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:02.35
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:02.86
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:03.36
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:03.86
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:04.36
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:04.86
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:05.37
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:05.87
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:06.37
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:06.88
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:07.38
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:07.88
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:08.38
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:08.88
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:09.39
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:09.89
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:10.39
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:10.90
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:11.40
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:11.90
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:12.40
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:12.90
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:13.41
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:13.91
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:14.41
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:14.91
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:15.42
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:15.92
1842	root	20	0	403380	134772	54944	R	100.0	26.5	4:16.42

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
1842	root	20	0	403380	134772	54944	S	26.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55
1842	root	20	0	403380	134772	54944	S	0.0	26.5	4:16.55

7.3.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2484	root	20	0	390056	127984	55876	S	0.0	25.2	2:26.41

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2484	root	20	0	390056	127984	55876	S	0.0	25.2	2:26.41
2484	root	20	0	390056	127984	55876	S	0.0	25.2	2:26.41
2484	root	20	0	390056	127984	55876	S	0.0	25.2	2:26.41
2484	root	20	0	390956	128396	56192	R	16.0	25.2	2:26.49
2484	root	20	0	394556	128832	56628	R	98.0	25.3	2:26.98
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:27.49
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:27.99
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:28.49
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:28.99
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:29.49
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:30.00
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:30.50
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:31.00
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:31.50
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:32.01
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:32.51
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:33.01
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:33.52
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:34.02
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:34.52
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:35.02
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:35.52
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:36.03
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:36.53
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:37.04
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:37.54
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:38.04
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:38.54
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:39.04
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:39.55

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:40.05
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:40.55
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:41.05
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:41.55
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:42.06
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:42.56
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:43.06
2484	root	20	0	395456	128832	56628	R	102.0	25.3	2:43.58
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:44.08
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:44.58
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:45.08
2484	root	20	0	395456	128832	56628	R	102.0	25.3	2:45.59
2484	root	20	0	395456	128832	56628	R	98.0	25.3	2:46.09
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:46.59
2484	root	20	0	395456	128832	56628	R	102.0	25.3	2:47.10
2484	root	20	0	395456	128832	56628	R	98.0	25.3	2:47.60
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:48.10
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:48.60
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:49.10
2484	root	20	0	395456	128832	56628	R	102.0	25.3	2:49.61
2484	root	20	0	395456	128832	56628	R	98.0	25.3	2:50.11
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:50.61
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:51.11
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:51.61
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:52.12
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:52.62
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:53.12
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:53.63
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:54.13
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:54.63

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:55.13
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:55.63
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:56.14
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:56.64
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:57.14
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:57.65
2484	root	20	0	395456	128832	56628	R	100.0	25.3	2:58.15
2484	root	20	0	395456	128832	56628	S	70.0	25.3	2:58.50
2484	root	20	0	395456	128832	56628	S	2.0	25.3	2:58.51
2484	root	20	0	395456	128832	56628	S	0.0	25.3	2:58.51
2484	root	20	0	395456	128832	56628	S	0.0	25.3	2:58.51
2484	root	20	0	395456	128832	56628	S	0.0	25.3	2:58.51
2484	root	20	0	395456	128832	56628	S	0.0	25.3	2:58.51

7.3.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2581	root	20	0	395454	128830	56631	S	0.0	25.3	2:58.51
2581	root	20	0	395454	128830	56631	R	46.5	25.3	2:59.91
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:02.91
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:05.92
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:08.92
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:11.93
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:14.93
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:17.94
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:20.94
2581	root	20	0	395454	128830	56631	R	99.7	25.3	3:23.94
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:26.94
2581	root	20	0	395454	128830	56631	R	100.0	25.3	3:29.95

7.3.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2916	root	20	0	388276	126496	54860	S	0.0	24.9	1:32.89
2916	root	20	0	393676	127828	56100	R	42.0	25.1	1:34.15
2916	root	20	0	393676	127828	56100	R	99.7	25.1	1:37.15
2916	root	20	0	393676	127828	56100	R	100.0	25.1	1:40.15
2916	root	20	0	393676	127828	56100	R	100.0	25.1	1:43.16
2916	root	20	0	393676	127828	56100	R	100.0	25.1	1:46.16
2916	root	20	0	393676	127828	56100	S	94.7	25.1	1:49.01

7.3.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3629	root	20	0	389184	127288	55152	S	0.0	25.0	0:24.78
3629	root	20	0	389184	127288	55152	S	0.0	25.0	0:24.78
3629	root	20	0	389184	127288	55152	S	0.0	25.0	0:24.78
3629	root	20	0	390084	128256	56028	R	15.0	25.2	0:24.87
3629	root	20	0	393684	128712	56484	R	98.3	25.3	0:25.46
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:26.06
3629	root	20	0	394584	128712	56484	R	98.3	25.3	0:26.65
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:27.26
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:27.86
3629	root	20	0	394584	128712	56484	R	98.3	25.3	0:28.45
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:29.05
3629	root	20	0	394584	128712	56484	R	98.4	25.3	0:29.65
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:30.25
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:30.85
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:31.45
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:32.05
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:32.66
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:33.26

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:33.86
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:34.46
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:35.06
3629	root	20	0	394584	128712	56484	R	100.0	25.3	0:35.67
3629	root	20	0	394584	128712	56484	S	73.3	25.3	0:36.11
3629	root	20	0	394584	128712	56484	S	0.0	25.3	0:36.11

7.4 Data Hasil Percobaan ARM Gaussian Blur

7.4.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2448	root	20	0	399900	136990	56630	S	0.0	26.9	3:42.74
2448	root	20	0	405302	136990	56630	R	26.0	26.9	3:43.52
2448	root	20	0	405302	136990	56630	R	100.0	26.9	3:46.53
2448	root	20	0	405302	136990	56630	R	100.0	26.9	3:49.53
2448	root	20	0	405302	136990	56630	R	100.0	26.9	3:52.54
2448	root	20	0	405302	136990	56630	R	99.7	26.9	3:55.53
2448	root	20	0	405302	136990	56630	R	100.0	26.9	3:58.54
2448	root	20	0	405302	136990	56630	R	100.0	26.9	4:01.54
2448	root	20	0	405302	136990	56630	R	100.0	26.9	4:04.55
2448	root	20	0	405302	136990	56630	R	100.0	26.9	4:07.55
2448	root	20	0	405302	136990	56630	R	100.0	26.9	4:10.56
2448	root	20	0	405302	136990	56630	R	100.0	26.9	4:13.56

7.4.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2484	root	20	0	405300	136996	56628	S	0.0	26.9	4:14.83
2484	root	20	0	405300	136996	56628	R	41.7	26.9	4:16.08
2484	root	20	0	405300	136996	56628	R	100.0	26.9	4:19.09

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2484	root	20	0	405300	136996	56628	R	100.0	26.9	4:22.09
2484	root	20	0	405300	136996	56628	R	100.0	26.9	4:25.10
2484	root	20	0	405300	136996	56628	R	100.0	26.9	4:28.10
2484	root	20	0	405300	136996	56628	S	92.7	26.9	4:30.89

7.4.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3002	root	20	0	390048	128116	56004	S	0	25.2	1:31.00
3002	root	20	0	395448	128860	56696	R	100	25.3	1:35.45
3002	root	20	0	395448	128860	56696	R	100	25.3	1:38.45
3002	root	20	0	395448	128860	56696	R	100.3	25.3	1:41.47
3002	root	20	0	395448	128860	56696	R	99.7	25.3	1:44.46
3002	root	20	0	395448	128860	56696	S	88	25.3	1:47.11

7.4.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3726	root	20	0	389292	127056	55060	S	0	25	0:27.50
3726	root	20	0	389292	127056	55060	S	0	25	0:27.50
3726	root	20	0	389292	127056	55060	S	0	25	0:27.50
3726	root	20	0	390192	128400	56312	R	25	25.2	0:27.65
3726	root	20	0	394692	128400	56312	R	98.3	25.2	0:28.24
3726	root	20	0	394692	128400	56312	R	100	25.2	0:28.85
3726	root	20	0	394692	128400	56312	R	98.3	25.2	0:29.44
3726	root	20	0	394692	128400	56312	R	100	25.2	0:30.04
3726	root	20	0	394692	128400	56312	R	98.3	25.2	0:30.63
3726	root	20	0	394692	128400	56312	R	100	25.2	0:31.23
3726	root	20	0	394692	128400	56312	R	98.4	25.2	0:31.83
3726	root	20	0	394692	128400	56312	R	100	25.2	0:32.43
3726	root	20	0	394692	128400	56312	R	98.3	25.2	0:33.02

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3726	root	20	0	394692	128400	56312	R	100	25.2	0:33.62
3726	root	20	0	394692	128400	56312	R	100	25.2	0:34.22
3726	root	20	0	394692	128400	56312	R	98.4	25.2	0:34.82
3726	root	20	0	394692	128400	56312	R	98.3	25.2	0:35.41
3726	root	20	0	394692	128400	56312	R	100	25.2	0:36.01
3726	root	20	0	394692	128400	56312	R	100	25.2	0:36.61
3726	root	20	0	394692	128400	56312	R	98.4	25.2	0:37.21
3726	root	20	0	394692	128400	56312	R	100	25.2	0:37.81
3726	root	20	0	394692	128400	56312	R	98.3	25.2	0:38.40
3726	root	20	0	394692	128400	56312	S	71.7	25.2	0:38.83
3726	root	20	0	394692	128400	56312	S	0	25.2	0:38.83
3726	root	20	0	394692	128400	56312	S	0	25.2	0:38.83
3726	root	20	0	394692	128400	56312	S	0	25.2	0:38.83

7.4.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3809	root	20	0	388172	126520	55092	S	0	24.9	4:34.19
3809	root	20	0	388172	126520	55092	S	0	24.9	4:34.19
3809	root	20	0	388172	126520	55092	S	0	24.9	4:34.19
3809	root	20	0	390872	127776	56252	R	43.3	25.1	4:34.45
3809	root	20	0	393572	127776	56252	R	100	25.1	4:35.05
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:35.64
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:36.23
3809	root	20	0	393572	127776	56252	R	100	25.1	4:36.84
3809	root	20	0	393572	127776	56252	R	100	25.1	4:37.44
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:38.03
3809	root	20	0	393572	127776	56252	R	90	25.1	4:38.57
3809	root	20	0	393572	127776	56252	R	98.4	25.1	4:39.17
3809	root	20	0	393572	127776	56252	R	100	25.1	4:39.77
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:40.36

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3809	root	20	0	393572	127776	56252	R	100	25.1	4:40.96
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:41.55
3809	root	20	0	393572	127776	56252	R	100	25.1	4:42.16
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:42.75
3809	root	20	0	393572	127776	56252	R	100	25.1	4:43.35
3809	root	20	0	393572	127776	56252	R	100	25.1	4:43.95
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:44.54
3809	root	20	0	393572	127776	56252	R	100	25.1	4:45.15
3809	root	20	0	393572	127776	56252	R	100	25.1	4:45.75
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:46.34
3809	root	20	0	393572	127776	56252	R	98.3	25.1	4:46.93
3809	root	20	0	393572	127776	56252	R	100	25.1	4:47.54
3809	root	20	0	393572	127776	56252	S	66.7	25.1	4:47.94
3809	root	20	0	393572	127776	56252	S	0	25.1	4:47.94
3809	root	20	0	393572	127776	56252	S	0	25.1	4:47.94

7.5 Data Hasil Percobaan ARM Laplacian

7.5.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4382	root	20	0	388124	125980	54808	S	0	24.8	0:24.96
4382	root	20	0	392624	127384	56120	R	77	25	0:25.43
4382	root	20	0	393524	127384	56120	R	100	25	0:26.62
4382	root	20	0	393524	127384	56120	R	96.7	25	0:27.20
4382	root	20	0	393524	127384	56120	R	100	25	0:27.81
4382	root	20	0	393524	127384	56120	R	100	25	0:29.00
4382	root	20	0	393524	127384	56120	R	98.3	25	0:29.59
4382	root	20	0	393524	127384	56120	R	100	25	0:34.93
4382	root	20	0	393524	127384	56120	R	100	25	0:35.53
4382	root	20	0	393524	127384	56120	S	23	25	0:35.67

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4382	root	20	0	393524	127384	56120	S	0	25	0:35.67

7.5.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4687	root	20	0	388372	126748	55008	S	0	24.9	1:24.81
4687	root	20	0	388372	126748	55008	S	0	24.9	1:24.81
4687	root	20	0	388372	126748	55008	S	0	24.9	1:24.81
4687	root	20	0	388372	126748	55008	S	0	24.9	1:24.81
4687	root	20	0	391972	128152	56320	R	65	25.2	1:25.20
4687	root	20	0	393772	128152	56320	R	100	25.2	1:25.80
4687	root	20	0	393772	128152	56320	R	98.3	25.2	1:26.39
4687	root	20	0	393772	128152	56320	R	100	25.2	1:27.00
4687	root	20	0	393772	128152	56320	R	100	25.2	1:27.60
4687	root	20	0	393772	128152	56320	R	100	25.2	1:28.20
4687	root	20	0	393772	128152	56320	R	100	25.2	1:28.80
4687	root	20	0	393772	128152	56320	R	100	25.2	1:29.41
4687	root	20	0	393772	128152	56320	R	100	25.2	1:30.01
4687	root	20	0	393772	128152	56320	R	100	25.2	1:30.61
4687	root	20	0	393772	128152	56320	R	100	25.2	1:31.21
4687	root	20	0	393772	128152	56320	R	100	25.2	1:31.81
4687	root	20	0	393772	128152	56320	R	100	25.2	1:32.42
4687	root	20	0	393772	128152	56320	R	100	25.2	1:33.02
4687	root	20	0	393772	128152	56320	R	100	25.2	1:33.62
4687	root	20	0	393772	128152	56320	R	100	25.2	1:34.22
4687	root	20	0	393772	128152	56320	R	100	25.2	1:34.83
4687	root	20	0	393772	128152	56320	R	100	25.2	1:35.43
4687	root	20	0	393772	128152	56320	S	8.3	25.2	1:35.48
4687	root	20	0	393772	128152	56320	S	0	25.2	1:35.48
4687	root	20	0	393772	128152	56320	S	0	25.2	1:35.48

7.5.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4764	root	20	0	387640	125868	54940	S	0	24.8	0:36.38
4764	root	20	0	387640	125868	54940	S	0	24.8	0:36.38
4764	root	20	0	387640	125868	54940	S	0	24.8	0:36.38
4764	root	20	0	391240	127228	56208	R	60	25	0:36.74
4764	root	20	0	393040	127228	56208	R	100	25	0:37.35
4764	root	20	0	393040	127228	56208	R	100	25	0:37.95
4764	root	20	0	393040	127228	56208	R	98.3	25	0:38.54
4764	root	20	0	393040	127228	56208	R	98.3	25	0:39.13
4764	root	20	0	393040	127228	56208	R	100	25	0:39.73
4764	root	20	0	393040	127228	56208	R	100	25	0:40.34
4764	root	20	0	393040	127228	56208	R	100	25	0:40.94
4764	root	20	0	393040	127228	56208	R	98.3	25	0:41.53
4764	root	20	0	393040	127228	56208	R	100	25	0:42.13
4764	root	20	0	393040	127228	56208	R	100	25	0:42.74
4764	root	20	0	393040	127228	56208	R	100	25	0:43.34
4764	root	20	0	393040	127228	56208	R	100	25	0:43.94
4764	root	20	0	393040	127228	56208	R	100	25	0:44.54
4764	root	20	0	393040	127228	56208	R	98.3	25	0:45.13
4764	root	20	0	393040	127228	56208	R	100	25	0:45.74
4764	root	20	0	393040	127228	56208	R	100	25	0:46.34
4764	root	20	0	393040	127228	56208	R	100	25	0:46.94
4764	root	20	0	393040	127228	56208	S	21.7	25	0:47.07
4764	root	20	0	393040	127228	56208	S	0	25	0:47.07
4764	root	20	0	393040	127228	56208	S	0	25	0:47.07
4764	root	20	0	393040	127228	56208	S	0	25	0:47.07
4764	root	20	0	393040	127228	56208	S	0	25	0:47.07

7.5.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4796	root	20	0	388160	126196	54992	S	0	24.8	1:23.26
4796	root	20	0	388160	126196	54992	S	0	24.8	1:23.26
4796	root	20	0	388160	126196	54992	S	0	24.8	1:23.26
4796	root	20	0	388160	126196	54992	S	0	24.8	1:23.26
4796	root	20	0	392660	127644	56348	R	95	25.1	1:23.83
4796	root	20	0	393560	127644	56348	R	98.3	25.1	1:24.42
4796	root	20	0	393560	127644	56348	R	100	25.1	1:25.02
4796	root	20	0	393560	127644	56348	R	100	25.1	1:25.62
4796	root	20	0	393560	127644	56348	R	100	25.1	1:26.23
4796	root	20	0	393560	127644	56348	R	100	25.1	1:26.83
4796	root	20	0	393560	127644	56348	R	100	25.1	1:27.43
4796	root	20	0	393560	127644	56348	R	100	25.1	1:28.03
4796	root	20	0	393560	127644	56348	R	98.3	25.1	1:28.62
4796	root	20	0	393560	127644	56348	R	100	25.1	1:29.23
4796	root	20	0	393560	127644	56348	R	100	25.1	1:29.83
4796	root	20	0	393560	127644	56348	R	100	25.1	1:30.43
4796	root	20	0	393560	127644	56348	R	98.3	25.1	1:31.02
4796	root	20	0	393560	127644	56348	R	101.6	25.1	1:31.64
4796	root	20	0	393560	127644	56348	R	98.3	25.1	1:32.23
4796	root	20	0	393560	127644	56348	R	100	25.1	1:32.83
4796	root	20	0	393560	127644	56348	R	100	25.1	1:33.43
4796	root	20	0	393560	127644	56348	S	86.7	25.1	1:33.95
4796	root	20	0	393560	127644	56348	S	0	25.1	1:33.95
4796	root	20	0	393560	127644	56348	S	0	25.1	1:33.95
4796	root	20	0	393560	127644	56348	S	0	25.1	1:33.95
4796	root	20	0	393560	127644	56348	S	0	25.1	1:33.95
4796	root	20	0	393560	127644	56348	S	0	25.1	1:33.95

7.5.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4848	root	20	0	387644	125812	55088	S	0	24.7	1:27.47
4848	root	20	0	387644	125812	55088	S	0	24.7	1:27.47
4848	root	20	0	387644	125812	55088	S	0	24.7	1:27.47
4848	root	20	0	387644	125812	55088	S	0	24.7	1:27.47
4848	root	20	0	393044	127060	56244	R	98.3	25	1:28.19
4848	root	20	0	393044	127060	56244	R	100	25	1:28.80
4848	root	20	0	393044	127060	56244	R	100	25	1:29.40
4848	root	20	0	393044	127060	56244	R	100	25	1:30.00
4848	root	20	0	393044	127060	56244	R	100	25	1:30.60
4848	root	20	0	393044	127060	56244	R	100	25	1:31.20
4848	root	20	0	393044	127060	56244	R	100	25	1:31.81
4848	root	20	0	393044	127060	56244	R	100	25	1:32.41
4848	root	20	0	393044	127060	56244	R	100	25	1:33.01
4848	root	20	0	393044	127060	56244	R	100	25	1:33.61
4848	root	20	0	393044	127060	56244	R	100	25	1:34.22
4848	root	20	0	393044	127060	56244	R	100	25	1:34.82
4848	root	20	0	393044	127060	56244	R	100	25	1:35.42
4848	root	20	0	393044	127060	56244	R	100	25	1:36.02
4848	root	20	0	393044	127060	56244	R	100	25	1:36.62
4848	root	20	0	393044	127060	56244	R	100	25	1:37.23
4848	root	20	0	393044	127060	56244	R	100	25	1:37.83
4848	root	20	0	393044	127060	56244	S	0	25	1:38.11
4848	root	20	0	393044	127060	56244	S	0	25	1:38.11
4848	root	20	0	393044	127060	56244	S	0	25	1:38.11
4848	root	20	0	393044	127060	56244	S	0	25	1:38.11
4848	root	20	0	393044	127060	56244	S	0	25	1:38.11

7.6 Data Hasil Percobaan ARM Sharpening

7.6.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3884	root	20	0	388268	126400	55208	S	0	24.9	0:34.21
3884	root	20	0	388268	126400	55208	S	0	24.9	0:34.21
3884	root	20	0	388268	126400	55208	S	0	24.9	0:34.21
3884	root	20	0	392768	127604	56316	R	96.7	25.1	0:34.87
3884	root	20	0	393668	127604	56316	R	100	25.1	0:35.48
3884	root	20	0	393668	127604	56316	R	100	25.1	0:36.08
3884	root	20	0	393668	127604	56316	R	100	25.1	0:36.68
3884	root	20	0	393668	127604	56316	R	100	25.1	0:37.28
3884	root	20	0	393668	127604	56316	R	100	25.1	0:37.89
3884	root	20	0	393668	127604	56316	R	100	25.1	0:38.49
3884	root	20	0	393668	127604	56316	R	100	25.1	0:39.09
3884	root	20	0	393668	127604	56316	R	100	25.1	0:39.69
3884	root	20	0	393668	127604	56316	R	100	25.1	0:40.29
3884	root	20	0	393668	127604	56316	R	100	25.1	0:40.90
3884	root	20	0	393668	127604	56316	R	100	25.1	0:41.50
3884	root	20	0	393668	127604	56316	R	100	25.1	0:42.10
3884	root	20	0	393668	127604	56316	R	100	25.1	0:42.70
3884	root	20	0	393668	127604	56316	R	100	25.1	0:43.30
3884	root	20	0	393668	127604	56316	R	100	25.1	0:43.91
3884	root	20	0	393668	127604	56316	R	100	25.1	0:44.51
3884	root	20	0	393668	127604	56316	R	100	25.1	0:45.11
3884	root	20	0	393668	127604	56316	R	100	25.1	0:45.71
3884	root	20	0	393668	127604	56316	R	100	25.1	0:46.32
3884	root	20	0	393668	127604	56316	R	100	25.1	0:46.92
3884	root	20	0	393668	127604	56316	R	100	25.1	0:47.52
3884	root	20	0	393668	127604	56316	S	88.3	25.1	0:48.05
3884	root	20	0	393668	127604	56316	S	0	25.1	0:48.05
3884	root	20	0	393668	127604	56316	S	0	25.1	0:48.05

7.6.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4052	root	20	0	394836	132740	54952	S	0	26.1	0:41.85
4052	root	20	0	394836	132740	54952	S	0	26.1	0:41.85
4052	root	20	0	394836	132740	54952	S	0	26.1	0:41.85
4052	root	20	0	400236	134168	56288	R	98.3	26.4	0:42.90
4052	root	20	0	400236	134168	56288	R	100	26.4	0:43.50
4052	root	20	0	400236	134168	56288	R	98.3	26.4	0:44.09
4052	root	20	0	400236	134168	56288	R	100	26.4	0:44.70
4052	root	20	0	400236	134168	56288	R	100	26.4	0:45.30
4052	root	20	0	400236	134168	56288	R	98.3	26.4	0:45.89
4052	root	20	0	400236	134168	56288	R	98.3	26.4	0:46.48
4052	root	20	0	400236	134168	56288	R	100	26.4	0:47.09
4052	root	20	0	400236	134168	56288	R	100	26.4	0:47.69
4052	root	20	0	400236	134168	56288	R	98.3	26.4	0:48.28
4052	root	20	0	400236	134168	56288	R	100	26.4	0:48.88
4052	root	20	0	400236	134168	56288	R	100	26.4	0:49.48
4052	root	20	0	400236	134168	56288	R	98.4	26.4	0:50.08
4052	root	20	0	400236	134168	56288	R	100	26.4	0:50.68
4052	root	20	0	400236	134168	56288	R	100	26.4	0:51.28
4052	root	20	0	400236	134168	56288	R	100	26.4	0:51.88
4052	root	20	0	400236	134168	56288	R	98.4	26.4	0:52.48
4052	root	20	0	400236	134168	56288	R	100	26.4	0:53.08
4052	root	20	0	400236	134168	56288	R	100	26.4	0:53.68
4052	root	20	0	400236	134168	56288	R	98.3	26.4	0:54.27
4052	root	20	0	400236	134168	56288	R	100	26.4	0:54.87
4052	root	20	0	400236	134168	56288	R	100	26.4	0:55.48
4052	root	20	0	400236	134168	56288	S	0	26.4	0:55.74

7.6.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4226	root	20	0	388268	126452	55252	S	0	24.9	0:33.83

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4226	root	20	0	388268	126452	55252	S	0	24.9	0:33.83
4226	root	20	0	388268	126452	55252	S	0	24.9	0:33.83
4226	root	20	0	392768	127684	56392	R	95	25.1	0:34.45
4226	root	20	0	393668	127684	56392	R	100	25.1	0:35.05
4226	root	20	0	393668	127684	56392	R	100	25.1	0:35.66
4226	root	20	0	393668	127684	56392	R	100	25.1	0:36.26
4226	root	20	0	393668	127684	56392	R	98.3	25.1	0:36.85
4226	root	20	0	393668	127684	56392	R	100	25.1	0:37.45
4226	root	20	0	393668	127684	56392	R	100	25.1	0:38.05
4226	root	20	0	393668	127684	56392	R	100	25.1	0:38.66
4226	root	20	0	393668	127684	56392	R	100	25.1	0:39.26
4226	root	20	0	393668	127684	56392	R	100	25.1	0:39.86
4226	root	20	0	393668	127684	56392	R	100	25.1	0:40.46
4226	root	20	0	393668	127684	56392	R	100	25.1	0:41.07
4226	root	20	0	393668	127684	56392	R	98.3	25.1	0:41.66
4226	root	20	0	393668	127684	56392	R	100	25.1	0:42.26
4226	root	20	0	393668	127684	56392	R	100	25.1	0:42.86
4226	root	20	0	393668	127684	56392	R	100	25.1	0:43.46
4226	root	20	0	393668	127684	56392	R	100	25.1	0:44.07
4226	root	20	0	393668	127684	56392	R	100	25.1	0:44.67
4226	root	20	0	393668	127684	56392	R	100	25.1	0:45.27
4226	root	20	0	393668	127684	56392	R	100	25.1	0:45.87
4226	root	20	0	393668	127684	56392	R	98.3	25.1	0:46.46
4226	root	20	0	393668	127684	56392	R	100	25.1	0:47.07
4226	root	20	0	393668	127684	56392	R	100	25.1	0:47.67
4226	root	20	0	393668	127684	56392	S	0	25.1	0:47.70
4226	root	20	0	393668	127684	56392	S	0	25.1	0:47.70
4226	root	20	0	393668	127684	56392	S	0	25.1	0:47.70

7.6.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3941	root	20	0	388124	126232	54928	S	0	24.8	0:23.33
3941	root	20	0	388124	126232	54928	S	0	24.8	0:23.33
3941	root	20	0	388124	126232	54928	S	0	24.8	0:23.33
3941	root	20	0	388124	126232	54928	S	0	24.8	0:23.33
3941	root	20	0	391724	127644	56248	R	95.1	25.1	0:23.91
3941	root	20	0	393524	127608	56212	R	98.3	25.1	0:24.50
3941	root	20	0	393524	127608	56212	R	100	25.1	0:25.10
3941	root	20	0	393524	127608	56212	R	98.3	25.1	0:25.69
3941	root	20	0	393524	127608	56212	R	100	25.1	0:26.30
3941	root	20	0	393524	127608	56212	R	100	25.1	0:26.90
3941	root	20	0	393524	127608	56212	R	98.3	25.1	0:27.49
3941	root	20	0	393524	127608	56212	R	100	25.1	0:28.09
3941	root	20	0	393524	127608	56212	R	100	25.1	0:28.69
3941	root	20	0	393524	127608	56212	R	98.4	25.1	0:29.29
3941	root	20	0	393524	127608	56212	R	100	25.1	0:29.89
3941	root	20	0	393524	127608	56212	R	100	25.1	0:30.49
3941	root	20	0	393524	127608	56212	R	98.3	25.1	0:31.08
3941	root	20	0	393524	127608	56212	R	103.3	25.1	0:31.70
3941	root	20	0	393524	127608	56212	R	96.7	25.1	0:32.29
3941	root	20	0	393524	127608	56212	R	100	25.1	0:32.89
3941	root	20	0	393524	127608	56212	R	100	25.1	0:33.49
3941	root	20	0	393524	127608	56212	R	98.3	25.1	0:34.08
3941	root	20	0	393524	127608	56212	R	100	25.1	0:34.69
3941	root	20	0	393524	127608	56212	R	100	25.1	0:35.29
3941	root	20	0	393524	127608	56212	R	98.3	25.1	0:35.88
3941	root	20	0	393524	127608	56212	R	100	25.1	0:36.48
3941	root	20	0	393524	127608	56212	R	98.3	25.1	0:37.07
3941	root	20	0	393524	127608	56212	S	0	25.1	0:37.20
3941	root	20	0	393524	127608	56212	S	0	25.1	0:37.20

7.6.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4262	root	20	0	389400	127112	54968	S	0	25	2:34.42
4262	root	20	0	389400	127112	54968	S	0	25	2:34.42
4262	root	20	0	389400	127112	54968	S	0	25	2:34.42
4262	root	20	0	394800	128520	56284	R	98.4	25.3	2:35.18
4262	root	20	0	394800	128520	56284	R	100	25.3	2:35.78
4262	root	20	0	394800	128520	56284	R	98.3	25.3	2:36.37
4262	root	20	0	394800	128520	56284	R	100	25.3	2:36.97
4262	root	20	0	394800	128520	56284	R	100	25.3	2:37.57
4262	root	20	0	394800	128520	56284	R	100	25.3	2:38.18
4262	root	20	0	394800	128520	56284	R	98.3	25.3	2:38.77
4262	root	20	0	394800	128520	56284	R	100	25.3	2:39.37
4262	root	20	0	394800	128520	56284	R	100	25.3	2:39.97
4262	root	20	0	394800	128520	56284	R	101.7	25.3	2:40.58
4262	root	20	0	394800	128520	56284	R	100	25.3	2:41.19
4262	root	20	0	394800	128520	56284	R	100	25.3	2:41.79
4262	root	20	0	394800	128520	56284	R	98.3	25.3	2:42.38
4262	root	20	0	394800	128520	56284	R	100	25.3	2:42.98
4262	root	20	0	394800	128520	56284	R	100	25.3	2:43.59
4262	root	20	0	394800	128520	56284	R	98.3	25.3	2:44.18
4262	root	20	0	394800	128520	56284	R	100	25.3	2:44.78
4262	root	20	0	394800	128520	56284	R	100	25.3	2:45.38
4262	root	20	0	394800	128520	56284	R	100	25.3	2:45.98
4262	root	20	0	394800	128520	56284	R	100	25.3	2:46.59
4262	root	20	0	394800	128520	56284	R	100	25.3	2:47.19
4262	root	20	0	394800	128520	56284	R	100	25.3	2:47.79
4262	root	20	0	394800	128520	56284	S	80	25.3	2:48.27
4262	root	20	0	394800	128520	56284	S	0	25.3	2:48.27
4262	root	20	0	394800	128520	56284	S	0	25.3	2:48.27
4262	root	20	0	394800	128520	56284	S	0	25.3	2:48.27

7.7 Data Hasil Percobaan ARM Sobel Horizontal

7.7.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4892	root	20	0	393556	127756	56308	S	0	25.1	0:39.52
4892	root	20	0	393556	127756	56308	S	0	25.1	0:39.52
4892	root	20	0	393556	127756	56308	R	98.3	25.1	0:40.50
4892	root	20	0	393556	127756	56308	R	100	25.1	0:41.10
4892	root	20	0	393556	127756	56308	R	100	25.1	0:41.71
4892	root	20	0	393556	127756	56308	R	98.3	25.1	0:42.30
4892	root	20	0	393556	127756	56308	R	100	25.1	0:42.90
4892	root	20	0	393556	127756	56308	R	100	25.1	0:43.50
4892	root	20	0	393556	127756	56308	R	98.4	25.1	0:44.10
4892	root	20	0	393556	127756	56308	R	100	25.1	0:44.70
4892	root	20	0	393556	127756	56308	R	100	25.1	0:45.30
4892	root	20	0	393556	127756	56308	R	100	25.1	0:45.90
4892	root	20	0	393556	127756	56308	R	98.3	25.1	0:46.49
4892	root	20	0	393556	127756	56308	R	100	25.1	0:47.10
4892	root	20	0	393556	127756	56308	R	101.7	25.1	0:47.71
4892	root	20	0	393556	127756	56308	R	98.3	25.1	0:48.30
4892	root	20	0	393556	127756	56308	R	100	25.1	0:48.90
4892	root	20	0	393556	127756	56308	R	100	25.1	0:49.51
4892	root	20	0	393556	127756	56308	R	100	25.1	0:50.11
4892	root	20	0	393556	127756	56308	R	98.3	25.1	0:50.70
4892	root	20	0	393556	127756	56308	S	0	25.1	0:50.89
4892	root	20	0	393556	127756	56308	S	0	25.1	0:50.89
4892	root	20	0	393556	127756	56308	S	0	25.1	0:50.89
4892	root	20	0	393556	127756	56308	S	0	25.1	0:50.89
4892	root	20	0	393556	127756	56308	S	0	25.1	0:50.89

7.7.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
5001	root	20	0	387644	125860	55160	S	0	24.7	1:22.23
5001	root	20	0	387644	125860	55160	S	0	24.7	1:22.23
5001	root	20	0	387644	125860	55160	S	0	24.7	1:22.23
5001	root	20	0	393044	127228	56436	R	95.1	25	1:22.89
5001	root	20	0	393044	127228	56436	R	96.7	25	1:23.47
5001	root	20	0	393044	127228	56436	R	101.7	25	1:24.08
5001	root	20	0	393044	127228	56436	R	98.3	25	1:24.67
5001	root	20	0	393044	127228	56436	R	100	25	1:25.27
5001	root	20	0	393044	127228	56436	R	98.4	25	1:25.87
5001	root	20	0	393044	127228	56436	R	100	25	1:26.47
5001	root	20	0	393044	127228	56436	R	100	25	1:27.07
5001	root	20	0	393044	127228	56436	R	100	25	1:27.67
5001	root	20	0	393044	127228	56436	R	98.3	25	1:28.26
5001	root	20	0	393044	127228	56436	R	100	25	1:28.87
5001	root	20	0	393044	127228	56436	R	100	25	1:29.47
5001	root	20	0	393044	127228	56436	R	100	25	1:30.07
5001	root	20	0	393044	127228	56436	R	100	25	1:30.67
5001	root	20	0	393044	127228	56436	R	98.4	25	1:31.27
5001	root	20	0	393044	127228	56436	R	100	25	1:31.87
5001	root	20	0	393044	127228	56436	R	100	25	1:32.47
5001	root	20	0	393044	127228	56436	R	100	25	1:33.07
5001	root	20	0	393044	127228	56436	S	95	25	1:33.64
5001	root	20	0	393044	127228	56436	S	0	25	1:33.64
5001	root	20	0	393044	127228	56436	S	0	25	1:33.64
5001	root	20	0	393044	127228	56436	S	0	25	1:33.64

7.7.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
5037	root	20	0	388372	126416	54956	S	0	24.9	1:37.14
5037	root	20	0	388372	126416	54956	S	0	24.9	1:37.14

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
5037	root	20	0	388372	126416	54956	S	0	24.9	1:37.14
5037	root	20	0	388372	126416	54956	S	0	24.9	1:37.14
5037	root	20	0	392872	127844	56292	R	91.8	25.1	1:37.70
5037	root	20	0	393772	127844	56292	R	100	25.1	1:38.30
5037	root	20	0	393772	127844	56292	R	100	25.1	1:38.90
5037	root	20	0	393772	127844	56292	R	100	25.1	1:39.50
5037	root	20	0	393772	127844	56292	R	100	25.1	1:40.10
5037	root	20	0	393772	127844	56292	R	98.4	25.1	1:40.70
5037	root	20	0	393772	127844	56292	R	98.3	25.1	1:41.29
5037	root	20	0	393772	127844	56292	R	100	25.1	1:41.89
5037	root	20	0	393772	127844	56292	R	100	25.1	1:42.49
5037	root	20	0	393772	127844	56292	R	100	25.1	1:43.10
5037	root	20	0	393772	127844	56292	R	98.3	25.1	1:43.69
5037	root	20	0	393772	127844	56292	R	100	25.1	1:44.29
5037	root	20	0	393772	127844	56292	R	100	25.1	1:44.89
5037	root	20	0	393772	127844	56292	R	98.3	25.1	1:45.48
5037	root	20	0	393772	127844	56292	R	100	25.1	1:46.09
5037	root	20	0	393772	127844	56292	R	100	25.1	1:46.69
5037	root	20	0	393772	127844	56292	R	100	25.1	1:47.29
5037	root	20	0	393772	127844	56292	R	100	25.1	1:47.89
5037	root	20	0	393772	127844	56292	R	100	25.1	1:48.50
5037	root	20	0	393772	127844	56292	S	0	25.1	1:48.57
5037	root	20	0	393772	127844	56292	S	0	25.1	1:48.57
5037	root	20	0	393772	127844	56292	S	0	25.1	1:48.57

7.7.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
5114	root	20	0	388308	127024	55200	S	0	25	1:30.19
5114	root	20	0	388308	127024	55200	S	0	25	1:30.19
5114	root	20	0	388308	127024	55200	S	0	25	1:30.19

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
5114	root	20	0	388308	127024	55200	S	0	25	1:30.19
5114	root	20	0	393708	128348	56428	R	98.3	25.2	1:31.06
5114	root	20	0	393708	128348	56428	R	100	25.2	1:31.67
5114	root	20	0	393708	128348	56428	R	100	25.2	1:32.27
5114	root	20	0	393708	128348	56428	R	93.3	25.2	1:32.83
5114	root	20	0	393708	128348	56428	R	100	25.2	1:33.43
5114	root	20	0	393708	128348	56428	R	98.3	25.2	1:34.02
5114	root	20	0	393708	128348	56428	R	100	25.2	1:34.63
5114	root	20	0	393708	128348	56428	R	100	25.2	1:35.23
5114	root	20	0	393708	128348	56428	R	100	25.2	1:35.83
5114	root	20	0	393708	128348	56428	R	100	25.2	1:36.43
5114	root	20	0	393708	128348	56428	R	100	25.2	1:37.03
5114	root	20	0	393708	128348	56428	R	98.4	25.2	1:37.63
5114	root	20	0	393708	128348	56428	R	101.7	25.2	1:38.24
5114	root	20	0	393708	128348	56428	R	98.3	25.2	1:38.83
5114	root	20	0	393708	128348	56428	R	100	25.2	1:39.43
5114	root	20	0	393708	128348	56428	R	100	25.2	1:40.04
5114	root	20	0	393708	128348	56428	R	100	25.2	1:40.64
5114	root	20	0	393708	128348	56428	R	100	25.2	1:41.24
5114	root	20	0	393708	128348	56428	S	0	25.2	1:41.61
5114	root	20	0	393708	128348	56428	S	0	25.2	1:41.61
5114	root	20	0	393708	128348	56428	S	0	25.2	1:41.61

7.7.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
5229	root	20	0	388244	126724	55124	S	0	24.9	0:24.91
5229	root	20	0	388244	126724	55124	S	0	24.9	0:24.91
5229	root	20	0	388244	126724	55124	S	0	24.9	0:24.91
5229	root	20	0	393644	127976	56284	R	98.3	25.2	0:25.80
5229	root	20	0	393644	127976	56284	R	100	25.2	0:26.40

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
5229	root	20	0	393644	127976	56284	R	98.3	25.2	0:26.99
5229	root	20	0	393644	127976	56284	R	100	25.2	0:27.60
5229	root	20	0	393644	127976	56284	R	100	25.2	0:28.20
5229	root	20	0	393644	127976	56284	R	98.3	25.2	0:28.79
5229	root	20	0	393644	127976	56284	R	100	25.2	0:29.39
5229	root	20	0	393644	127976	56284	R	100	25.2	0:29.99
5229	root	20	0	393644	127976	56284	R	100	25.2	0:30.60
5229	root	20	0	393644	127976	56284	R	98.3	25.2	0:31.19
5229	root	20	0	393644	127976	56284	R	100	25.2	0:31.79
5229	root	20	0	393644	127976	56284	R	98.3	25.2	0:32.38
5229	root	20	0	393644	127976	56284	R	100	25.2	0:32.99
5229	root	20	0	393644	127976	56284	R	100	25.2	0:33.59
5229	root	20	0	393644	127976	56284	R	100	25.2	0:34.19
5229	root	20	0	393644	127976	56284	R	98.3	25.2	0:34.78
5229	root	20	0	393644	127976	56284	R	100	25.2	0:35.38
5229	root	20	0	393644	127976	56284	R	100	25.2	0:35.99
5229	root	20	0	393644	127976	56284	S	0	25.2	0:36.33
5229	root	20	0	393644	127976	56284	S	0	25.2	0:36.33

7.8 Data Hasil Percobaan ARM Sobel Vertical

7.8.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3160	root	20	0	389932	128000	55724	S	0	25.2	0:31.48
3160	root	20	0	395332	128844	56508	R	33.9	25.3	0:32.50
3160	root	20	0	395332	128844	56508	R	99.7	25.3	0:35.49
3160	root	20	0	395332	128844	56508	R	100	25.3	0:38.50
3160	root	20	0	395332	128844	56508	R	100	25.3	0:41.50
3160	root	20	0	395332	128844	56508	R	100	25.3	0:44.50
3160	root	20	0	395332	128844	56508	S	18.9	25.3	0:45.07

7.8.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3302	root	20	0	395576	129188	56444	R	100	25.4	1:31.32
3302	root	20	0	395576	129188	56444	R	100	25.4	1:34.33
3302	root	20	0	395576	129188	56444	R	99.7	25.4	1:37.32
3302	root	20	0	395576	129188	56444	R	100	25.4	1:40.33
3302	root	20	0	395576	129188	56444	S	86.3	25.4	1:42.92

7.8.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3365	root	20	0	390052	127956	55848	S	0	25.2	2:29.25
3365	root	20	0	395452	128632	56472	R	43	25.3	2:30.54
3365	root	20	0	395452	128632	56472	R	100	25.3	2:33.55
3365	root	20	0	395452	128632	56472	R	100	25.3	2:36.55
3365	root	20	0	395452	128632	56472	R	100	25.3	2:39.56
3365	root	20	0	395452	128632	56472	R	100	25.3	2:42.56

7.8.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4551	root	20	0	388788	126840	55264	S	0	24.9	0:30.02
4551	root	20	0	388788	126840	55264	S	0	24.9	0:30.02
4551	root	20	0	388788	126840	55264	S	0	24.9	0:30.02
4551	root	20	0	388788	126840	55264	S	0	24.9	0:30.02
4551	root	20	0	394188	128096	56428	R	100	25.2	0:31.09
4551	root	20	0	394188	128096	56428	R	98.3	25.2	0:31.68
4551	root	20	0	394188	128096	56428	R	100	25.2	0:32.28
4551	root	20	0	394188	128096	56428	R	100	25.2	0:32.89
4551	root	20	0	394188	128096	56428	R	100	25.2	0:33.49
4551	root	20	0	394188	128096	56428	R	98.3	25.2	0:34.08
4551	root	20	0	394188	128096	56428	R	100	25.2	0:34.68

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4551	root	20	0	394188	128096	56428	R	98.3	25.2	0:35.27
4551	root	20	0	394188	128096	56428	R	100	25.2	0:35.88
4551	root	20	0	394188	128096	56428	R	100	25.2	0:36.48
4551	root	20	0	394188	128096	56428	R	98.3	25.2	0:37.07
4551	root	20	0	394188	128096	56428	R	100	25.2	0:37.67
4551	root	20	0	394188	128096	56428	R	100	25.2	0:38.27
4551	root	20	0	394188	128096	56428	R	98.4	25.2	0:38.87
4551	root	20	0	394188	128096	56428	R	100	25.2	0:39.47
4551	root	20	0	394188	128096	56428	R	100	25.2	0:40.07
4551	root	20	0	394188	128096	56428	R	98.3	25.2	0:40.66
4551	root	20	0	394188	128096	56428	R	100	25.2	0:41.27
4551	root	20	0	394188	128096	56428	S	0	25.2	0:41.55
4551	root	20	0	394188	128096	56428	S	0	25.2	0:41.55

7.8.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4349	root	20	0	389296	126920	54848	S	0	25	0:23.35
4349	root	20	0	389296	126920	54848	S	0	25	0:23.35
4349	root	20	0	389296	126920	54848	S	0	25	0:23.35
4349	root	20	0	389296	126920	54848	S	0	25	0:23.35
4349	root	20	0	394696	128296	56128	R	98.3	25.2	0:24.38
4349	root	20	0	394696	128296	56128	R	100	25.2	0:24.98
4349	root	20	0	394696	128296	56128	R	98.4	25.2	0:25.58
4349	root	20	0	394696	128296	56128	R	100	25.2	0:26.18
4349	root	20	0	394696	128296	56128	R	100	25.2	0:26.78
4349	root	20	0	394696	128296	56128	R	93.3	25.2	0:27.34
4349	root	20	0	394696	128296	56128	R	100	25.2	0:27.94
4349	root	20	0	394696	128296	56128	R	98.4	25.2	0:28.54
4349	root	20	0	394696	128296	56128	R	100	25.2	0:29.14
4349	root	20	0	394696	128296	56128	R	100	25.2	0:29.74

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4349	root	20	0	394696	128296	56128	R	100	25.2	0:30.34
4349	root	20	0	394696	128296	56128	R	98.4	25.2	0:30.94
4349	root	20	0	394696	128296	56128	R	100	25.2	0:31.54
4349	root	20	0	394696	128296	56128	R	98.3	25.2	0:32.13
4349	root	20	0	394696	128296	56128	R	91.7	25.2	0:32.68
4349	root	20	0	394696	128296	56128	R	100	25.2	0:33.28
4349	root	20	0	394696	128296	56128	R	100	25.2	0:33.89
4349	root	20	0	394696	128296	56128	R	98.3	25.2	0:34.48
4349	root	20	0	394696	128296	56128	S	0	25.2	0:34.93
4349	root	20	0	394696	128296	56128	S	0	25.2	0:34.93

7.9 Data Hasil Percobaan FPGA Average Blur

7.9.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:29.80
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:29.80
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:29.80
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:29.80
1953	root	20	0	395476	125284	52972	R	13.7	24.6	1:29.87
1953	root	20	0	395476	125284	52972	R	84.0	24.6	1:30.29
1953	root	20	0	395476	125284	52972	R	84.0	24.6	1:30.71
1953	root	20	0	395476	125284	52972	R	84.0	24.6	1:31.13
1953	root	20	0	395476	125284	52972	R	84.0	24.6	1:31.55
1953	root	20	0	395476	125284	52972	R	84.3	24.6	1:31.98
1953	root	20	0	395476	125284	52972	R	84.0	24.6	1:32.40
1953	root	20	0	395476	125284	52972	S	56.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68
1953	root	20	0	395476	125284	52972	S	0.0	24.6	1:32.68

7.9.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2204	root	20	0	389960	127980	55780	S	0.0	25.2	0:28.22

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2204	root	20	0	389960	127980	55780	S	0.0	25.2	0:28.22
2204	root	20	0	389960	127980	55780	S	0.0	25.2	0:28.22
2204	root	20	0	389960	127980	55780	S	0.0	25.2	0:28.22
2204	root	20	0	395360	127984	55780	R	78.0	25.2	0:28.61
2204	root	20	0	395360	127984	55780	R	84.0	25.2	0:29.03
2204	root	20	0	395360	127984	55780	R	86.3	25.2	0:29.47
2204	root	20	0	395360	127984	55780	R	82.0	25.2	0:29.88
2204	root	20	0	395360	127984	55780	S	84.0	25.2	0:30.30
2204	root	20	0	395360	127984	55780	R	86.0	25.2	0:30.73
2204	root	20	0	395360	127984	55780	R	84.0	25.2	0:31.15
2204	root	20	0	395360	127984	55780	S	7.8	25.2	0:31.19
2204	root	20	0	395360	127984	55780	S	0.0	25.2	0:31.19
2204	root	20	0	395360	127984	55780	S	0.0	25.2	0:31.19
2204	root	20	0	395360	127984	55780	S	0.0	25.2	0:31.19

7.9.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2301	root	20	0	390084	127908	55764	S	0.0	25.2	3:30.82
2301	root	20	0	390084	127908	55764	S	0.0	25.2	3:30.82
2301	root	20	0	390084	127908	55764	S	0.0	25.2	3:30.82
2301	root	20	0	390084	127908	55764	S	0.0	25.2	3:30.82
2301	root	20	0	395484	127808	55664	R	86.0	25.1	3:31.25
2301	root	20	0	395484	127808	55664	S	86.0	25.1	3:31.68
2301	root	20	0	395484	127808	55664	R	84.0	25.1	3:32.10
2301	root	20	0	395484	127808	55664	R	84.0	25.1	3:32.52
2301	root	20	0	395484	127808	55664	R	82.4	25.1	3:32.94
2301	root	20	0	395484	127808	55664	R	84.0	25.1	3:33.36
2301	root	20	0	395484	127808	55664	S	72.0	25.1	3:33.72
2301	root	20	0	395484	127808	55664	S	0.0	25.1	3:33.72

7.9.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3646	root	20	0	389928	124528	52224	S	0.0	24.5	0:27.21
3646	root	20	0	389928	124528	52224	S	0.0	24.5	0:27.21
3646	root	20	0	389928	124528	52224	S	0.0	24.5	0:27.21
3646	root	20	0	389928	124528	52224	R	13.7	24.5	0:27.28
3646	root	20	0	395328	124528	52224	R	84.0	24.5	0:27.70
3646	root	20	0	395328	124528	52224	R	84.0	24.5	0:28.12
3646	root	20	0	395328	124528	52224	R	86.0	24.5	0:28.55
3646	root	20	0	395328	124528	52224	R	86.0	24.5	0:28.98
3646	root	20	0	395328	124528	52224	R	82.4	24.5	0:29.40
3646	root	20	0	395328	124528	52224	R	84.0	24.5	0:29.82
3646	root	20	0	395328	124528	52224	S	62.0	24.5	0:30.13
3646	root	20	0	395328	124528	52224	S	0.0	24.5	0:30.13
3646	root	20	0	395328	124528	52224	S	0.0	24.5	0:30.13

7.9.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3725	root	20	0	389932	124884	52560	S	0.0	24.6	0:25.33
3725	root	20	0	389932	124884	52560	S	0.0	24.6	0:25.33
3725	root	20	0	389932	124884	52560	S	0.0	24.6	0:25.33
3725	root	20	0	389932	124884	52560	S	0.0	24.6	0:25.33
3725	root	20	0	395332	124884	52560	R	82.0	24.6	0:25.74
3725	root	20	0	395332	124884	52560	R	82.0	24.6	0:26.15
3725	root	20	0	395332	124884	52560	R	86.3	24.6	0:26.59
3725	root	20	0	395332	124884	52560	R	84.0	24.6	0:27.01
3725	root	20	0	395332	124884	52560	R	84.0	24.6	0:27.43
3725	root	20	0	395332	124884	52560	R	82.0	24.6	0:27.84
3725	root	20	0	395332	124884	52560	S	78.0	24.6	0:28.23
3725	root	20	0	395332	124884	52560	S	0.0	24.6	0:28.23

7.10 Data Hasil Percobaan FPGA Gaussian Blur

7.10.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2417	root	20	0	390000	128356	55732	S	0.0	25.2	1:30.34
2417	root	20	0	390000	128356	55732	S	0.0	25.2	1:30.34
2417	root	20	0	390000	128356	55732	S	0.0	25.2	1:30.34
2417	root	20	0	390000	128356	55732	S	0.0	25.2	1:30.34
2417	root	20	0	390000	128356	55732	S	0.0	25.2	1:30.34
2417	root	20	0	390000	128356	55732	S	0.0	25.2	1:30.34
2417	root	20	0	395400	128324	55700	R	78.0	25.2	1:30.73
2417	root	20	0	395400	128324	55700	R	84.0	25.2	1:31.15
2417	root	20	0	395400	128324	55700	S	84.0	25.2	1:31.57
2417	root	20	0	395400	128324	55700	R	82.0	25.2	1:31.98
2417	root	20	0	395400	128324	55700	R	84.3	25.2	1:32.41
2417	root	20	0	395400	128324	55700	R	82.0	25.2	1:32.82
2417	root	20	0	395400	128364	55700	S	84.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24
2417	root	20	0	395400	128364	55700	S	0.0	25.2	1:33.24

7.10.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2507	root	20	0	389960	128340	55748	S	0.0	25.2	0:25.30
2507	root	20	0	389960	128340	55748	S	0.0	25.2	0:25.30
2507	root	20	0	389960	128340	55748	S	0.0	25.2	0:25.30
2507	root	20	0	389960	128340	55748	S	0.0	25.2	0:25.30
2507	root	20	0	395360	128340	55748	R	82.0	25.2	0:25.71
2507	root	20	0	395360	128340	55748	R	84.0	25.2	0:26.13
2507	root	20	0	395360	128340	55748	R	86.0	25.2	0:26.56
2507	root	20	0	395360	128340	55748	S	84.0	25.2	0:26.98
2507	root	20	0	395360	128340	55748	R	84.0	25.2	0:27.40
2507	root	20	0	395360	128340	55748	R	82.4	25.2	0:27.82
2507	root	20	0	395360	128340	55748	S	78.0	25.2	0:28.21
2507	root	20	0	395360	128340	55748	S	0.0	25.2	0:28.21

7.10.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3186	root	20	0	395872	127760	54964	S	0	25.1	1:33.79
3186	root	20	0	395872	127760	54964	S	0	25.1	1:33.79
3186	root	20	0	395872	127760	54964	S	0	25.1	1:33.79
3186	root	20	0	395872	127760	54964	R	16	25.1	1:33.87
3186	root	20	0	395872	127760	54964	R	90	25.1	1:34.32
3186	root	20	0	395872	127760	54964	R	90.2	25.1	1:34.78
3186	root	20	0	395872	127760	54964	R	88	25.1	1:35.22
3186	root	20	0	395872	127760	54964	S	86	25.1	1:35.65
3186	root	20	0	395872	127760	54964	R	84	25.1	1:36.07
3186	root	20	0	395872	127760	54964	R	82.4	25.1	1:36.49
3186	root	20	0	395872	127760	54964	R	82	25.1	1:36.90
3186	root	20	0	395872	127760	54964	R	84	25.1	1:37.32
3186	root	20	0	395872	127760	54964	R	82	25.1	1:37.73

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3186	root	20	0	395872	127760	54964	S	80	25.1	1:38.13
3186	root	20	0	395872	127760	54964	S	0	25.1	1:38.13
3186	root	20	0	395872	127760	54964	S	0	25.1	1:38.13
3186	root	20	0	395872	127760	54964	S	0	25.1	1:38.13
3186	root	20	0	395872	127760	54964	S	0	25.1	1:38.13
3186	root	20	0	395872	127760	54964	S	0	25.1	1:38.13
3186	root	20	0	395872	127760	54964	S	0	25.1	1:38.13

7.10.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3786	root	20	0	390044	126284	53736	S	0.0	24.8	0:24.12
3786	root	20	0	390044	126284	53736	S	0.0	24.8	0:24.12
3786	root	20	0	390044	126284	53736	S	0.0	24.8	0:24.12
3786	root	20	0	390044	126284	53736	S	0.0	24.8	0:24.12
3786	root	20	0	395444	126284	53736	R	52.0	24.8	0:24.38
3786	root	20	0	395444	126284	53736	R	82.4	24.8	0:24.80
3786	root	20	0	395444	126284	53736	R	86.0	24.8	0:25.23
3786	root	20	0	395444	126284	53736	R	84.0	24.8	0:25.65
3786	root	20	0	395444	126284	53736	S	86.0	24.8	0:26.08
3786	root	20	0	395444	126284	53736	R	84.0	24.8	0:26.50
3786	root	20	0	395444	126284	53736	R	82.4	24.8	0:26.92
3786	root	20	0	395444	126284	53736	S	22.0	24.8	0:27.03
3786	root	20	0	395444	126284	53736	S	0.0	24.8	0:27.03

7.10.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3869	root	20	0	389968	124968	52376	S	0.0	24.6	2:39.90
3869	root	20	0	389968	124968	52376	S	0.0	24.6	2:39.90
3869	root	20	0	389968	124968	52376	S	0.0	24.6	2:39.90

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3869	root	20	0	389968	124968	52376	S	0.0	24.6	2:39.90
3869	root	20	0	389968	124968	52376	S	0.0	24.6	2:39.90
3869	root	20	0	389968	124968	52376	S	0.0	24.6	2:39.90
3869	root	20	0	389968	124968	52376	R	2.0	24.6	2:39.91
3869	root	20	0	395368	124968	52376	S	88.0	24.6	2:40.35
3869	root	20	0	395368	124968	52376	R	84.0	24.6	2:40.77
3869	root	20	0	395368	124968	52376	R	80.4	24.6	2:41.18
3869	root	20	0	395368	124968	52376	R	84.0	24.6	2:41.60
3869	root	20	0	395368	124968	52376	R	86.0	24.6	2:42.03
3869	root	20	0	395368	124968	52376	R	84.0	24.6	2:42.45
3869	root	20	0	395368	124968	52376	S	68.0	24.6	2:42.79
3869	root	20	0	395368	124968	52376	S	0.0	24.6	2:42.79
3869	root	20	0	395368	124968	52376	S	0.0	24.6	2:42.79

7.11 Data Hasil Percobaan FPGA Laplacian

7.11.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3210	root	20	0	389964	124524	52264	S	0.0	24.5	0:27.27
3210	root	20	0	389964	124524	52264	S	0.0	24.5	0:27.27
3210	root	20	0	389964	124524	52264	S	0.0	24.5	0:27.27
3210	root	20	0	389964	124524	52264	S	0.0	24.5	0:27.27
3210	root	20	0	395364	124524	52264	R	36.0	24.5	0:27.45
3210	root	20	0	395364	124524	52264	R	84.0	24.5	0:27.87
3210	root	20	0	395364	124524	52264	R	84.0	24.5	0:28.29
3210	root	20	0	395364	124524	52264	R	84.3	24.5	0:28.72
3210	root	20	0	395364	124524	52264	S	84.0	24.5	0:29.14
3210	root	20	0	395364	124524	52264	R	86.0	24.5	0:29.57
3210	root	20	0	395364	124524	52264	R	84.0	24.5	0:29.99
3210	root	20	0	395364	124524	52264	S	36.0	24.5	0:30.17

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3210	root	20	0	395364	124524	52264	S	0.0	24.5	0:30.17

7.11.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3333	root	20	0	390072	126108	53520	S	0.0	24.8	0:36.64
3333	root	20	0	390072	126108	53520	S	0.0	24.8	0:36.64
3333	root	20	0	390072	126108	53520	S	0.0	24.8	0:36.64
3333	root	20	0	392772	126108	53520	R	16.0	24.8	0:36.72
3333	root	20	0	395472	126108	53520	S	84.3	24.8	0:37.15
3333	root	20	0	395472	126108	53520	R	84.0	24.8	0:37.57
3333	root	20	0	395472	126108	53520	R	86.0	24.8	0:38.00
3333	root	20	0	395472	126108	53520	R	84.0	24.8	0:38.42
3333	root	20	0	395472	126108	53520	R	84.0	24.8	0:38.84
3333	root	20	0	395472	126108	53520	R	82.4	24.8	0:39.26
3333	root	20	0	395472	126108	53520	S	56.0	24.8	0:39.54
3333	root	20	0	395472	126108	53520	S	0.0	24.8	0:39.54
3333	root	20	0	395472	126108	53520	S	0.0	24.8	0:39.54
3333	root	20	0	395472	126108	53520	S	0.0	24.8	0:39.54

7.11.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3395	root	20	0	390084	124780	52464	S	0.0	24.5	4:30.71
3395	root	20	0	390084	124780	52464	S	0.0	24.5	4:30.71
3395	root	20	0	390084	124780	52464	S	0.0	24.5	4:30.71
3395	root	20	0	390084	124780	52464	S	0.0	24.5	4:30.71
3395	root	20	0	395484	124780	52464	R	38.0	24.5	4:30.90
3395	root	20	0	395484	124780	52464	R	84.0	24.5	4:31.32
3395	root	20	0	395484	124780	52464	S	86.0	24.5	4:31.75
3395	root	20	0	395484	124780	52464	S	82.4	24.5	4:32.17

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3395	root	20	0	395484	124780	52464	R	84.0	24.5	4:32.59
3395	root	20	0	395484	124780	52464	R	84.0	24.5	4:33.01
3395	root	20	0	395484	124780	52464	R	84.0	24.5	4:33.43
3395	root	20	0	395484	124780	52464	S	37.3	24.5	4:33.62
3395	root	20	0	395484	124780	52464	S	0.0	24.5	4:33.62

7.11.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3471	root	20	0	391100	125080	52200	S	0.0	24.6	1:24.31
3471	root	20	0	391100	125080	52200	S	0.0	24.6	1:24.31
3471	root	20	0	391100	125080	52200	S	0.0	24.6	1:24.31
3471	root	20	0	391100	125080	52200	S	0.0	24.6	1:24.31
3471	root	20	0	391100	125080	52200	S	0.0	24.6	1:24.31
3471	root	20	0	396500	125080	52200	R	86.0	24.6	1:24.74
3471	root	20	0	396500	125080	52200	S	86.0	24.6	1:25.17
3471	root	20	0	396500	125080	52200	R	82.4	24.6	1:25.59
3471	root	20	0	396500	125080	52200	R	86.0	24.6	1:26.02
3471	root	20	0	396500	125080	52200	R	84.0	24.6	1:26.44
3471	root	20	0	396500	125080	52200	R	84.0	24.6	1:26.86
3471	root	20	0	396500	125080	52200	S	72.5	24.6	1:27.23
3471	root	20	0	396500	125080	52200	S	0.0	24.6	1:27.23

7.11.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3534	root	20	0	389972	124536	52392	S	0.0	24.5	2:37.58
3534	root	20	0	389972	124536	52392	S	0.0	24.5	2:37.58
3534	root	20	0	389972	124536	52392	S	0.0	24.5	2:37.58
3534	root	20	0	389972	124536	52392	S	0.0	24.5	2:37.58
3534	root	20	0	389972	124536	52392	S	0.0	24.5	2:37.58

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3534	root	20	0	395372	124536	52392	R	78.0	24.5	2:37.97
3534	root	20	0	395372	124536	52392	R	84.0	24.5	2:38.39
3534	root	20	0	395372	124536	52392	R	84.0	24.5	2:38.81
3534	root	20	0	395372	124536	52392	S	88.0	24.5	2:39.25
3534	root	20	0	395372	124536	52392	R	80.4	24.5	2:39.66
3534	root	20	0	395372	124536	52392	R	84.0	24.5	2:40.08
3534	root	20	0	395372	124536	52392	S	82.0	24.5	2:40.49
3534	root	20	0	395372	124536	52392	S	0.0	24.5	2:40.49
3534	root	20	0	395372	124536	52392	S	0.0	24.5	2:40.49
3534	root	20	0	395372	124536	52392	S	0.0	24.5	2:40.49

7.12 Data Hasil Percobaan FPGA Sharpening

7.12.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3538	root	20	0	389960	127716	55588	S	0	25.1	0:29.98
3538	root	20	0	389960	127716	55588	S	0	25.1	0:29.98
3538	root	20	0	389960	127716	55588	S	0	25.1	0:29.98
3538	root	20	0	389960	127716	55588	S	0	25.1	0:29.98
3538	root	20	0	389960	127716	55588	S	0	25.1	0:29.98
3538	root	20	0	389960	127716	55588	S	0	25.1	0:29.98
3538	root	20	0	395360	127716	55588	S	78	25.1	0:30.37
3538	root	20	0	395360	127716	55588	R	84	25.1	0:30.79
3538	root	20	0	395360	127716	55588	R	82	25.1	0:31.20
3538	root	20	0	395360	127716	55588	R	84	25.1	0:31.62
3538	root	20	0	395360	127716	55588	R	82.4	25.1	0:32.04
3538	root	20	0	395360	127716	55588	R	84	25.1	0:32.46
3538	root	20	0	395360	127716	55588	R	84	25.1	0:32.88
3538	root	20	0	395360	127716	55588	S	84	25.1	0:33.30
3538	root	20	0	395360	127716	55588	R	84	25.1	0:33.72

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3538	root	20	0	395360	127716	55588	R	82.4	25.1	0:34.14
3538	root	20	0	395360	127716	55588	S	24	25.1	0:34.26
3538	root	20	0	395360	127716	55588	S	0	25.1	0:34.26
3538	root	20	0	395360	127716	55588	S	0	25.1	0:34.26
3538	root	20	0	395360	127716	55588	S	0	25.1	0:34.26

7.12.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2534	root	20	0	389960	128188	55852	S	0.0	25.2	0:30.86
2534	root	20	0	389960	128188	55852	S	0.0	25.2	0:30.86
2534	root	20	0	389960	128188	55852	S	0.0	25.2	0:30.86
2534	root	20	0	389960	128188	55852	S	0.0	25.2	0:30.86
2534	root	20	0	395360	127856	55500	R	86.0	25.1	0:31.29
2534	root	20	0	395360	127856	55500	R	88.2	25.1	0:31.74
2534	root	20	0	395360	127856	55500	R	90.0	25.1	0:32.19
2534	root	20	0	395360	127856	55500	R	84.0	25.1	0:32.61
2534	root	20	0	395360	127856	55500	R	94.0	25.1	0:33.08
2534	root	20	0	395360	127856	55500	R	92.2	25.1	0:33.55
2534	root	20	0	395360	127888	55500	S	94.0	25.1	0:34.02
2534	root	20	0	395360	127888	55500	S	0.0	25.1	0:34.02

7.12.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2599	root	20	0	389928	128032	55668	S	0.0	25.2	0:33.73
2599	root	20	0	389928	128032	55668	S	0.0	25.2	0:33.73
2599	root	20	0	389928	128032	55668	S	0.0	25.2	0:33.73
2599	root	20	0	389928	128032	55668	S	0.0	25.2	0:33.73
2599	root	20	0	390828	128032	55668	R	16.0	25.2	0:33.81
2599	root	20	0	395328	128016	55652	R	82.0	25.2	0:34.22

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2599	root	20	0	395328	128016	55652	R	84.3	25.2	0:34.65
2599	root	20	0	395328	128016	55652	S	84.0	25.2	0:35.07
2599	root	20	0	395328	128016	55652	S	86.0	25.2	0:35.50
2599	root	20	0	395328	128016	55652	R	84.0	25.2	0:35.92
2599	root	20	0	395328	128016	55652	R	84.0	25.2	0:36.34
2599	root	20	0	395328	128044	55652	S	60.8	25.2	0:36.65
2599	root	20	0	395328	128044	55652	S	0.0	25.2	0:36.65

7.12.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2763	root	20	0	390984	128304	55404	S	0.0	25.2	0:25.36
2763	root	20	0	390984	128304	55404	S	0.0	25.2	0:25.36
2763	root	20	0	390984	128304	55404	S	0.0	25.2	0:25.36
2763	root	20	0	396384	128304	55404	R	60.8	25.2	0:25.67
2763	root	20	0	396384	128304	55404	S	82.0	25.2	0:26.08
2763	root	20	0	396384	128304	55404	R	84.0	25.2	0:26.50
2763	root	20	0	396384	128304	55404	R	84.0	25.2	0:26.92
2763	root	20	0	396384	128304	55404	R	82.0	25.2	0:27.33
2763	root	20	0	396384	128304	55404	R	84.3	25.2	0:27.76
2763	root	20	0	396384	128304	55404	R	86.0	25.2	0:28.19
2763	root	20	0	396384	128304	55404	S	20.0	25.2	0:28.29
2763	root	20	0	396384	128304	55404	S	0.0	25.2	0:28.29

7.12.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2818	root	20	0	390044	127764	55500	S	0.0	25.1	0:24.20
2818	root	20	0	390044	127764	55500	S	0.0	25.1	0:24.20
2818	root	20	0	390044	127764	55500	S	0.0	25.1	0:24.20
2818	root	20	0	390044	127764	55500	R	12.0	25.1	0:24.26

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2818	root	20	0	395444	127764	55500	R	86.0	25.1	0:24.69
2818	root	20	0	395444	127764	55500	R	86.0	25.1	0:25.12
2818	root	20	0	395444	127764	55500	S	86.0	25.1	0:25.55
2818	root	20	0	395444	127764	55500	R	82.4	25.1	0:25.97
2818	root	20	0	395444	127764	55500	R	84.0	25.1	0:26.39
2818	root	20	0	395444	127764	55500	R	84.0	25.1	0:26.81
2818	root	20	0	395444	127764	55500	S	64.0	25.1	0:27.13
2818	root	20	0	395444	127764	55500	S	0.0	25.1	0:27.13

7.13 Data Hasil Percobaan FPGA Sobel Horizontal

7.13.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2409	root	20	0	390048	126420	53972	S	0.0	24.9	0:28.64
2409	root	20	0	390048	126420	53972	S	0.0	24.9	0:28.64
2409	root	20	0	390048	126420	53972	S	0.0	24.9	0:28.64
2409	root	20	0	390048	126420	53972	S	0.0	24.9	0:28.64
2409	root	20	0	390048	126420	53972	S	0.0	24.9	0:28.64
2409	root	20	0	395448	125396	52948	R	66.0	24.7	0:28.97
2409	root	20	0	395448	125396	52948	R	84.3	24.7	0:29.40
2409	root	20	0	395448	125396	52948	S	84.0	24.7	0:29.82
2409	root	20	0	395448	125396	52948	R	86.0	24.7	0:30.25
2409	root	20	0	395448	125396	52948	R	82.0	24.7	0:30.66
2409	root	20	0	395448	125396	52948	R	82.0	24.7	0:31.07
2409	root	20	0	395448	125396	52948	R	82.4	24.7	0:31.49
2409	root	20	0	395448	125396	52948	S	10.0	24.7	0:31.54
2409	root	20	0	395448	125396	52948	S	0.0	24.7	0:31.54
2409	root	20	0	395448	125396	52948	S	0.0	24.7	0:31.54
2409	root	20	0	395448	125396	52948	S	0.0	24.7	0:31.54
2409	root	20	0	395448	125396	52948	S	0.0	24.7	0:31.54

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2409	root	20	0	395448	125396	52948	S	0.0	24.7	0:31.54
2409	root	20	0	395448	125396	52948	S	0.0	24.7	0:31.54
2409	root	20	0	395448	125396	52948	S	0.0	24.7	0:31.54

7.13.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2915	root	20	0	391096	127148	54312	S	0.0	25.0	0:30.89
2915	root	20	0	391096	127148	54312	S	0.0	25.0	0:30.89
2915	root	20	0	391096	127148	54312	S	0.0	25.0	0:30.89
2915	root	20	0	391096	127148	54312	S	0.0	25.0	0:30.89
2915	root	20	0	396496	126992	54052	R	54.9	25.0	0:31.17
2915	root	20	0	396496	126992	54052	R	98.0	25.0	0:31.66
2915	root	20	0	396496	126992	54052	R	100.0	25.0	0:32.16
2915	root	20	0	396496	126992	54052	R	98.0	25.0	0:32.65
2915	root	20	0	396496	126992	54052	R	96.0	25.0	0:33.13
2915	root	20	0	396496	126992	54052	R	90.2	25.0	0:33.59
2915	root	20	0	396496	126992	54052	R	92.0	25.0	0:34.05
2915	root	20	0	396496	126992	54052	S	28.0	25.0	0:34.19
2915	root	20	0	396496	126992	54052	S	0.0	25.0	0:34.19

7.13.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2971	root	20	0	389440	125124	53208	S	0.0	24.6	0:25.43
2971	root	20	0	389440	125124	53208	S	0.0	24.6	0:25.43
2971	root	20	0	389440	125124	53208	S	0.0	24.6	0:25.43
2971	root	20	0	389440	125124	53208	S	0.0	24.6	0:25.43
2971	root	20	0	394840	125124	53208	R	28.0	24.6	0:25.57
2971	root	20	0	394840	125124	53208	R	88.0	24.6	0:26.01
2971	root	20	0	394840	125124	53208	R	80.4	24.6	0:26.42

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2971	root	20	0	394840	125124	53208	R	84.0	24.6	0:26.84
2971	root	20	0	394840	125124	53208	R	86.0	24.6	0:27.27
2971	root	20	0	394840	125124	53208	R	86.0	24.6	0:27.70
2971	root	20	0	394840	125124	53208	R	66.7	24.6	0:28.04
2971	root	20	0	394840	125124	53208	S	54.0	24.6	0:28.31
2971	root	20	0	394840	125124	53208	S	0.0	24.6	0:28.31

7.13.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3025	root	20	0	390072	125140	52556	S	0.0	24.6	0:36.53
3025	root	20	0	390072	125140	52556	S	0.0	24.6	0:36.53
3025	root	20	0	390072	125140	52556	S	0.0	24.6	0:36.53
3025	root	20	0	392772	125140	52556	R	21.6	24.6	0:36.64
3025	root	20	0	395472	125140	52556	R	84.0	24.6	0:37.06
3025	root	20	0	395472	125140	52556	S	86.0	24.6	0:37.49
3025	root	20	0	395472	125140	52556	R	82.0	24.6	0:37.90
3025	root	20	0	395472	125140	52556	R	86.0	24.6	0:38.33
3025	root	20	0	395472	125140	52556	R	82.4	24.6	0:38.75
3025	root	20	0	395472	125140	52556	R	84.0	24.6	0:39.17
3025	root	20	0	395472	125160	52556	S	54.0	24.6	0:39.44
3025	root	20	0	395472	125160	52556	S	0.0	24.6	0:39.44

7.13.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3150	root	20	0	389964	124420	52312	S	0.0	24.5	0:36.61
3150	root	20	0	389964	124420	52312	S	0.0	24.5	0:36.61
3150	root	20	0	389964	124420	52312	S	0.0	24.5	0:36.61
3150	root	20	0	389964	124420	52312	S	0.0	24.5	0:36.61
3150	root	20	0	395364	124448	52312	R	78.0	24.5	0:37.00

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3150	root	20	0	395364	124448	52312	R	82.0	24.5	0:37.41
3150	root	20	0	395364	124448	52312	R	84.0	24.5	0:37.83
3150	root	20	0	395364	124448	52312	R	84.3	24.5	0:38.26
3150	root	20	0	395364	124448	52312	S	88.0	24.5	0:38.70
3150	root	20	0	395364	124448	52312	R	82.0	24.5	0:39.11
3150	root	20	0	395364	124448	52312	S	80.0	24.5	0:39.51
3150	root	20	0	395364	124448	52312	S	0.0	24.5	0:39.51
3150	root	20	0	395364	124448	52312	S	0.0	24.5	0:39.51

7.14 Data Hasil Percobaan FPGA Sobel Vertical

7.14.1 Percobaan 1

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2678	root	20	0	389960	128560	55984	S	0.0	25.3	0:31.45
2678	root	20	0	389960	128560	55984	S	0.0	25.3	0:31.45
2678	root	20	0	389960	128560	55984	S	0.0	25.3	0:31.45
2678	root	20	0	389960	128560	55984	S	0.0	25.3	0:31.45
2678	root	20	0	389960	128560	55984	S	0.0	25.3	0:31.45
2678	root	20	0	395360	128560	55984	R	86.0	25.3	0:31.88
2678	root	20	0	395360	128560	55984	R	84.0	25.3	0:32.30
2678	root	20	0	395360	128560	55984	R	84.3	25.3	0:32.73
2678	root	20	0	395360	128560	55984	R	82.0	25.3	0:33.14
2678	root	20	0	395360	128560	55984	S	84.0	25.3	0:33.56
2678	root	20	0	395360	128560	55984	R	84.0	25.3	0:33.98
2678	root	20	0	395360	128560	55984	S	70.0	25.3	0:34.33
2678	root	20	0	395360	128560	55984	S	0.0	25.3	0:34.33

7.14.2 Percobaan 2

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2873	root	20	0	390076	127728	55476	S	0.0	25.1	0:27.24
2873	root	20	0	390076	127728	55476	S	0.0	25.1	0:27.24
2873	root	20	0	390076	127728	55476	S	0.0	25.1	0:27.24
2873	root	20	0	395476	127728	55476	R	33.3	25.1	0:27.41
2873	root	20	0	395476	127728	55476	R	84.0	25.1	0:27.83
2873	root	20	0	395476	127728	55476	R	82.0	25.1	0:28.24
2873	root	20	0	395476	127728	55476	R	84.0	25.1	0:28.66
2873	root	20	0	395476	127728	55476	R	84.0	25.1	0:29.08
2873	root	20	0	395476	127728	55476	R	84.3	25.1	0:29.51
2873	root	20	0	395476	127728	55476	S	84.0	25.1	0:29.93
2873	root	20	0	395476	127728	55476	S	38.0	25.1	0:30.12

7.14.3 Percobaan 3

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
2934	root	20	0	389960	127864	55448	S	0.0	25.1	0:33.68
2934	root	20	0	389960	127864	55448	S	0.0	25.1	0:33.68
2934	root	20	0	389960	127864	55448	S	0.0	25.1	0:33.68
2934	root	20	0	389960	127864	55448	R	0.0	25.1	0:33.68
2934	root	20	0	395360	127864	55448	R	96.0	25.1	0:34.16
2934	root	20	0	395360	127864	55448	R	92.0	25.1	0:34.62
2934	root	20	0	395360	127864	55448	R	92.2	25.1	0:35.09
2934	root	20	0	395360	127864	55448	R	92.0	25.1	0:35.55
2934	root	20	0	395360	127864	55448	R	92.0	25.1	0:36.01
2934	root	20	0	395360	127864	55448	R	100.0	25.1	0:36.51
2934	root	20	0	395360	127864	55448	S	80.0	25.1	0:36.91
2934	root	20	0	395360	127864	55448	S	0.0	25.1	0:36.91
2934	root	20	0	395360	127864	55448	S	0.0	25.1	0:36.91

7.14.4 Percobaan 4

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
3922	root	20	0	389964	125148	53016	S	0.0	24.6	0:31.47
3922	root	20	0	389964	125148	53016	S	0.0	24.6	0:31.47
3922	root	20	0	389964	125148	53016	S	0.0	24.6	0:31.47
3922	root	20	0	389964	125148	53016	S	0.0	24.6	0:31.47
3922	root	20	0	395364	125148	53016	R	72.0	24.6	0:31.83
3922	root	20	0	395364	125148	53016	S	88.0	24.6	0:32.27
3922	root	20	0	395364	125148	53016	R	84.0	24.6	0:32.69
3922	root	20	0	395364	125148	53016	R	84.3	24.6	0:33.12
3922	root	20	0	395364	125148	53016	R	86.0	24.6	0:33.55
3922	root	20	0	395364	125148	53016	R	84.0	24.6	0:33.97
3922	root	20	0	395364	125148	53016	S	86.0	24.6	0:34.40
3922	root	20	0	395364	125148	53016	S	0.0	24.6	0:34.40
3922	root	20	0	395364	125148	53016	S	0.0	24.6	0:34.40

7.14.5 Percobaan 5

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4030	root	20	0	389968	125868	53716	S	0.0	24.8	1:30.55
4030	root	20	0	389968	125868	53716	S	0.0	24.8	1:30.55
4030	root	20	0	389968	125868	53716	S	0.0	24.8	1:30.55
4030	root	20	0	389968	125868	53716	S	0.0	24.8	1:30.55
4030	root	20	0	395368	125868	53716	R	80.0	24.8	1:30.95
4030	root	20	0	395368	125868	53716	R	84.0	24.8	1:31.37
4030	root	20	0	395368	125868	53716	R	84.0	24.8	1:31.79
4030	root	20	0	395368	125868	53716	S	86.3	24.8	1:32.23
4030	root	20	0	395368	125868	53716	R	84.0	24.8	1:32.65
4030	root	20	0	395368	125868	53716	R	84.0	24.8	1:33.07
4030	root	20	0	395368	125868	53716	R	80.0	24.8	1:33.47
4030	root	20	0	395368	125868	53716	S	0.0	24.8	1:33.47

PID	USER	PR	NI	VIRT	RES	SHR	S	CPU	MEM	TIME
4030	root	20	0	395368	125868	53716	S	0.0	24.8	1:33.47