**[iMac (Retina 5K, 27-inch, 2017) / macOS High Sierra]**

===== [Begin of Platform 0(1)] ========================================================================================

\* CL\_PLATFORM\_NAME: Apple

\* CL\_PLATFORM\_VENDOR: Apple

\* CL\_PLATFORM\_VERSION: OpenCL 1.2 (Oct 31 2017 18:30:00)

\* CL\_PLATFORM\_PROFILE: FULL\_PROFILE

\* CL\_PLATFORM\_EXTENSIONS: cl\_APPLE\_SetMemObjectDestructor cl\_APPLE\_ContextLoggingFunctions cl\_APPLE\_clut cl\_APPLE\_query\_kernel\_names cl\_APPLE\_gl\_sharing cl\_khr\_gl\_event

----- [Begin of Device 0(2) of Platform 0] ----------------------------------------------------------------------

- CL\_DEVICE\_NAME: Intel(R) Core(TM) i7-7700K CPU @ 4.20GHz

- CL\_DEVICE\_TYPE: CL\_DEVICE\_TYPE\_CPU

- CL\_DEVICE\_AVAILABLE: YES

- CL\_DEVICE\_VENDOR: Intel

- CL\_DEVICE\_VENDOR\_ID: 4294967295

- CL\_DEVICE\_VERSION: OpenCL 1.2

- CL\_DEVICE\_PROFILE: FULL\_PROFILE

- CL\_DRIVER\_VERSION: 1.1

- CL\_DEVICE\_EXTENSIONS: cl\_APPLE\_SetMemObjectDestructor cl\_APPLE\_ContextLoggingFunctions cl\_APPLE\_clut cl\_APPLE\_query\_kernel\_names cl\_APPLE\_gl\_sharing cl\_khr\_gl\_event cl\_khr\_fp64 cl\_khr\_global\_int32\_base\_atomics cl\_khr\_global\_int32\_extended\_atomics cl\_khr\_local\_int32\_base\_atomics cl\_khr\_local\_int32\_extended\_atomics cl\_khr\_byte\_addressable\_store cl\_khr\_int64\_base\_atomics cl\_khr\_int64\_extended\_atomics cl\_khr\_3d\_image\_writes cl\_khr\_image2d\_from\_buffer cl\_APPLE\_fp64\_basic\_ops cl\_APPLE\_fixed\_alpha\_channel\_orders cl\_APPLE\_biased\_fixed\_point\_image\_formats cl\_APPLE\_command\_queue\_priority

- CL\_DEVICE\_MAX\_COMPUTE\_UNITS: 8

- CL\_DEVICE\_MAX\_WORK\_ITEM\_DIMENSIONS: 3

- CL\_DEVICE\_MAX\_WORK\_ITEM\_SIZES: 1024 / 1 / 1

- CL\_DEVICE\_MAX\_WORK\_GROUP\_SIZE: 1024

- CL\_DEVICE\_MAX\_CLOCK\_FREQUENCY: 4200 MHz

- CL\_DEVICE\_ADDRESS\_BITS: 64

- CL\_DEVICE\_MAX\_MEM\_ALLOC\_SIZE: 8192 MBytes

- CL\_DEVICE\_GLOBAL\_MEM\_SIZE: 32768 MBytes

- CL\_DEVICE\_GLOBAL\_MEM\_CACHE\_TYPE: CL\_READ\_WRITE\_CACHE

- CL\_DEVICE\_GLOBAL\_MEM\_CACHE\_SIZE: 0KBytes

- CL\_DEVICE\_GLOBAL\_MEM\_CACHELINE\_SIZE: 8388608 Bytes

- CL\_DEVICE\_LOCAL\_MEM\_TYPE: GLOBAL

- CL\_DEVICE\_LOCAL\_MEM\_SIZE: 32 KByte

- CL\_DEVICE\_MAX\_CONSTANT\_\_buffer\_SIZE: 0 MBytes

- CL\_DEVICE\_MEM\_BASE\_ADDR\_ALIGN: 1024 Bits

- CL\_DEVICE\_MIN\_DATA\_TYPE\_ALIGN\_SIZE: 128 Bytes

- CL\_DEVICE\_EXECUTION\_CAPABILITIES: CL\_EXEC\_KERNEL CL\_EXEC\_NATIVE\_KERNEL

- CL\_DEVICE\_QUEUE\_PROPERTIES: CL\_QUEUE\_PROFILING\_ENABLE

- CL\_DEVICE\_ERROR\_CORRECTION\_SUPPORT: NO

- CL\_DEVICE\_ENDIAN\_LITTLE: YES

- CL\_DEVICE\_COMPILER\_AVAILABLE: YES

- CL\_DEVICE\_PROFILING\_TIMER\_RESOLUTION: 1 nanosecond(s)

- CL\_DEVICE\_MAX\_PARAMETER\_SIZE: 4096 Bytes

- CL\_DEVICE\_MAX\_CONSTANT\_ARGS: 8

- CL\_DEVICE\_IMAGE\_SUPPORT: YES

- CL\_DEVICE\_MAX\_SAMPLERS: 16

- CL\_DEVICE\_MAX\_READ\_IMAGE\_ARGS: 128

- CL\_DEVICE\_MAX\_WRITE\_IMAGE\_ARGS: 8

- CL\_DEVICE\_IMAGE2D\_MAX\_WIDTH: 8192

- CL\_DEVICE\_IMAGE2D\_MAX\_HEIGHT: 8192

- CL\_DEVICE\_IMAGE3D\_MAX\_WIDTH: 2048

- CL\_DEVICE\_IMAGE3D\_MAX\_HEIGHT: 2048

- CL\_DEVICE\_IMAGE3D\_MAX\_DEPTH: 2048

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_CHAR: 16

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_SHORT: 8

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_INT: 4

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_LONG: 2

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_FLOAT: 4

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_DOUBLE: 2

- CL\_DEVICE\_SINGLE\_FP\_CONFIG: CL\_FP\_DENORM CL\_FP\_INF\_NAN CL\_FP\_ROUND\_TO\_NEAREST CL\_FP\_ROUND\_TO\_ZERO CL\_FP\_ROUND\_TO\_INF CL\_FP\_FMA

- CL\_DEVICE\_DOUBLE\_FP\_CONFIG: CL\_FP\_DENORM CL\_FP\_INF\_NAN CL\_FP\_ROUND\_TO\_NEAREST CL\_FP\_ROUND\_TO\_ZERO CL\_FP\_ROUND\_TO\_INF CL\_FP\_FMA

----- [End of Device 0(2) of Platform 0] ------------------------------------------------------------------------

----- [Begin of Device 1(2) of Platform 0] ----------------------------------------------------------------------

- CL\_DEVICE\_NAME: AMD Radeon Pro 580 Compute Engine

- CL\_DEVICE\_TYPE: CL\_DEVICE\_TYPE\_GPU

- CL\_DEVICE\_AVAILABLE: YES

- CL\_DEVICE\_VENDOR: AMD

- CL\_DEVICE\_VENDOR\_ID: 16915456

- CL\_DEVICE\_VERSION: OpenCL 1.2

- CL\_DEVICE\_PROFILE: FULL\_PROFILE

- CL\_DRIVER\_VERSION: 1.2 (Dec 20 2017 17:28:06)

- CL\_DEVICE\_EXTENSIONS: cl\_APPLE\_SetMemObjectDestructor cl\_APPLE\_ContextLoggingFunctions cl\_APPLE\_clut cl\_APPLE\_query\_kernel\_names cl\_APPLE\_gl\_sharing cl\_khr\_gl\_event cl\_khr\_global\_int32\_base\_atomics cl\_khr\_global\_int32\_extended\_atomics cl\_khr\_local\_int32\_base\_atomics cl\_khr\_local\_int32\_extended\_atomics cl\_khr\_byte\_addressable\_store cl\_khr\_image2d\_from\_buffer cl\_khr\_depth\_images cl\_APPLE\_command\_queue\_priority cl\_APPLE\_command\_queue\_select\_compute\_units cl\_khr\_fp64

- CL\_DEVICE\_MAX\_COMPUTE\_UNITS: 36

- CL\_DEVICE\_MAX\_WORK\_ITEM\_DIMENSIONS: 3

- CL\_DEVICE\_MAX\_WORK\_ITEM\_SIZES: 256 / 256 / 256

- CL\_DEVICE\_MAX\_WORK\_GROUP\_SIZE: 256

- CL\_DEVICE\_MAX\_CLOCK\_FREQUENCY: 1200 MHz

- CL\_DEVICE\_ADDRESS\_BITS: 32

- CL\_DEVICE\_MAX\_MEM\_ALLOC\_SIZE: 2048 MBytes

- CL\_DEVICE\_GLOBAL\_MEM\_SIZE: 8192 MBytes

- CL\_DEVICE\_GLOBAL\_MEM\_CACHE\_TYPE: CL\_NONE

- CL\_DEVICE\_GLOBAL\_MEM\_CACHE\_SIZE: 0KBytes

- CL\_DEVICE\_GLOBAL\_MEM\_CACHELINE\_SIZE: 0 Bytes

- CL\_DEVICE\_LOCAL\_MEM\_TYPE: LOCAL

- CL\_DEVICE\_LOCAL\_MEM\_SIZE: 32 KByte

- CL\_DEVICE\_MAX\_CONSTANT\_\_buffer\_SIZE: 0 MBytes

- CL\_DEVICE\_MEM\_BASE\_ADDR\_ALIGN: 32768 Bits

- CL\_DEVICE\_MIN\_DATA\_TYPE\_ALIGN\_SIZE: 128 Bytes

- CL\_DEVICE\_EXECUTION\_CAPABILITIES: CL\_EXEC\_KERNEL

- CL\_DEVICE\_QUEUE\_PROPERTIES: CL\_QUEUE\_PROFILING\_ENABLE

- CL\_DEVICE\_ERROR\_CORRECTION\_SUPPORT: NO

- CL\_DEVICE\_ENDIAN\_LITTLE: YES

- CL\_DEVICE\_COMPILER\_AVAILABLE: YES

- CL\_DEVICE\_PROFILING\_TIMER\_RESOLUTION: 40 nanosecond(s)

- CL\_DEVICE\_MAX\_PARAMETER\_SIZE: 1024 Bytes

- CL\_DEVICE\_MAX\_CONSTANT\_ARGS: 8

- CL\_DEVICE\_IMAGE\_SUPPORT: YES

- CL\_DEVICE\_MAX\_SAMPLERS: 16

- CL\_DEVICE\_MAX\_READ\_IMAGE\_ARGS: 128

- CL\_DEVICE\_MAX\_WRITE\_IMAGE\_ARGS: 8

- CL\_DEVICE\_IMAGE2D\_MAX\_WIDTH: 16384

- CL\_DEVICE\_IMAGE2D\_MAX\_HEIGHT: 16384

- CL\_DEVICE\_IMAGE3D\_MAX\_WIDTH: 2048

- CL\_DEVICE\_IMAGE3D\_MAX\_HEIGHT: 2048

- CL\_DEVICE\_IMAGE3D\_MAX\_DEPTH: 2048

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_CHAR: 4

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_SHORT: 2

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_INT: 1

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_LONG: 1

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_FLOAT: 1

- CL\_DEVICE\_PREFERRED\_VECTOR\_WIDTH\_DOUBLE: 1

- CL\_DEVICE\_SINGLE\_FP\_CONFIG: CL\_FP\_INF\_NAN CL\_FP\_ROUND\_TO\_NEAREST CL\_FP\_ROUND\_TO\_ZERO CL\_FP\_ROUND\_TO\_INF

- CL\_DEVICE\_DOUBLE\_FP\_CONFIG: CL\_FP\_DENORM CL\_FP\_INF\_NAN CL\_FP\_ROUND\_TO\_NEAREST CL\_FP\_ROUND\_TO\_ZERO CL\_FP\_ROUND\_TO\_INF CL\_FP\_FMA

----- [End of Device 1(2) of Platform 0] ------------------------------------------------------------------------

===== [End of Platform 0(1)] ==========================================================================================

Program ended with exit code: 0

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///////////// COALESCED\_GLOBAL\_MEMORY\_ACCESS (defined) /////////////

///////////// work\_group\_size\_GPU = 256 /////////////

///////////// work\_group\_size\_CPU = 128 /////////////

^^^ Generating random input arrays with 134217728 elements each...

^^^ Done!

^^^ Test 1: general CPU computation ^^^

[CPU Execution]

\* Time by host clock = 1881.457ms

[Check Results]

\* C[44739242] = 1.532704, C[67108864] = 1.011567, C[100663296] = -1.257693

^^^ The first GPU device on the platform ^^^

- CL\_DEVICE\_NAME: AMD Radeon Pro 580 Compute Engine

- CL\_DEVICE\_TYPE: CL\_DEVICE\_TYPE\_GPU

- CL\_DEVICE\_VENDOR: AMD

- CL\_DEVICE\_VERSION: OpenCL 1.2

- CL\_DEVICE\_PROFILE: FULL\_PROFILE

- CL\_DRIVER\_VERSION: 1.2 (Dec 20 2017 17:28:06)

^^^ The first CPU device on the platform ^^^

- CL\_DEVICE\_NAME: Intel(R) Core(TM) i7-7700K CPU @ 4.20GHz

- CL\_DEVICE\_TYPE: CL\_DEVICE\_TYPE\_CPU

- CL\_DEVICE\_VENDOR: Intel

- CL\_DEVICE\_VERSION: OpenCL 1.2

- CL\_DEVICE\_PROFILE: FULL\_PROFILE

- CL\_DRIVER\_VERSION: 1.1

^^^ Test 2: Computing on OpenCL GPU Device ^^^

[Kernel Execution]

\* Time by host clock = 32.020ms

\* Time by device clock:

- Time from QUEUED to END = 12.197ms

- Time from SUBMIT to END = 12.168ms

- Time from START to END = 12.167ms

[Data Transfer]

\* Time by host clock = 61.122ms

\* Time by device clock:

- Time from QUEUED to END = 51.856ms

- Time from SUBMIT to END = 51.856ms

- Time from START to END = 51.855ms

[Check Results]

\* C[44739242] = 1.532704, C[67108864] = 1.011567, C[100663296] = -1.257693

^^^ Test 3: Computing on OpenCL CPU Device ^^^

[Kernel Execution]

\* Time by host clock = 1083.431ms

\* Time by device clock:

- Time from QUEUED to END = 890.934ms

- Time from SUBMIT to END = 890.934ms

- Time from START to END = 890.903ms

[Data Transfer]

\* Time by host clock = 53.451ms

\* Time by device clock:

- Time from QUEUED to END = 53.435ms

- Time from SUBMIT to END = 53.435ms

- Time from START to END = 53.435ms

[Check Results]

\* C[44739242] = 1.532704, C[67108864] = 1.011567, C[100663296] = -1.257693

Program ended with exit code: 0

///////////// COALESCED\_GLOBAL\_MEMORY\_ACCESS (undefined) /////////////

///////////// work\_group\_size\_GPU = 256 /////////////

///////////// work\_group\_size\_CPU = 128 /////////////

^^^ Generating random input arrays with 134217728 elements each...

^^^ Done!

^^^ Test 1: general CPU computation ^^^

[CPU Execution]

\* Time by host clock = 1810.716ms

[Check Results]

\* C[44739242] = 1.532704, C[67108864] = 1.011567, C[100663296] = -1.257693

^^^ The first GPU device on the platform ^^^

- CL\_DEVICE\_NAME: AMD Radeon Pro 580 Compute Engine

- CL\_DEVICE\_TYPE: CL\_DEVICE\_TYPE\_GPU

- CL\_DEVICE\_VENDOR: AMD

- CL\_DEVICE\_VERSION: OpenCL 1.2

- CL\_DEVICE\_PROFILE: FULL\_PROFILE

- CL\_DRIVER\_VERSION: 1.2 (Dec 20 2017 17:28:06)

^^^ The first CPU device on the platform ^^^

- CL\_DEVICE\_NAME: Intel(R) Core(TM) i7-7700K CPU @ 4.20GHz

- CL\_DEVICE\_TYPE: CL\_DEVICE\_TYPE\_CPU

- CL\_DEVICE\_VENDOR: Intel

- CL\_DEVICE\_VERSION: OpenCL 1.2

- CL\_DEVICE\_PROFILE: FULL\_PROFILE

- CL\_DRIVER\_VERSION: 1.1

^^^ Test 2: Computing on OpenCL GPU Device ^^^

[Kernel Execution]

\* Time by host clock = 674.099ms

\* Time by device clock:

- Time from QUEUED to END = 654.166ms

- Time from SUBMIT to END = 654.138ms

- Time from START to END = 654.137ms

[Data Transfer]

\* Time by host clock = 61.081ms

\* Time by device clock:

- Time from QUEUED to END = 51.911ms

- Time from SUBMIT to END = 51.910ms

- Time from START to END = 51.909ms

[Check Results]

\* C[44739242] = 1.532704, C[67108864] = 1.011567, C[100663296] = -1.257693

^^^ Test 3: Computing on OpenCL CPU Device ^^^

[Kernel Execution]

\* Time by host clock = 2054.085ms

\* Time by device clock:

- Time from QUEUED to END = 1857.369ms

- Time from SUBMIT to END = 1857.369ms

- Time from START to END = 1857.276ms

[Data Transfer]

\* Time by host clock = 53.721ms

\* Time by device clock:

- Time from QUEUED to END = 53.706ms

- Time from SUBMIT to END = 53.706ms

- Time from START to END = 53.706ms

[Check Results]

\* C[44739242] = 1.532704, C[67108864] = 1.011567, C[100663296] = -1.257693

Program ended with exit code: 0