병렬프로그래밍

개설학기	2018학년도 2학기									
소 속	컴퓨터학부									
교 수 명	백낙훈									
학 점	3									
	- Focusing on the capability of parallel programming capability.									
수업목표	^E - Also Focusing on the capability of CUDA, OpenCL, OpenMP programming.									
주차	주차별 학습내용	차시(모듈)	차시별 학습내용	학습목표	학습목차	학습자료	PPT 슬라이드 수			
1	Introduction to the course. History of GPU Compuing	1	cuda-prelude	1. Course Objectives 2. Lecturer 3. Textbooks 4. 슈어이 구서	1. Course Objectives 2. Lecturer 3. Textbooks 4. 수억이 구서	참고문헌, ppt 교안	17			
		2	trends	 FLOPS Super Computer Trends Personal Super-Computing Energy Efficient 	 PLOPS Super Computer Trends Personal Super-Computing Energy Efficient 		25			
		3	intro	1. CPU and GPU 2. Moore's Law 3. Massively Parallel Processing	 Architecturec CPU and GPU Moore's Law Massively Parallel Processing 		27			
2	Data Parallelism and CUDA C Data Parallel Execution Model	1	history	1. 3D Graphics Pipeline 2. hardware Development 3. Farly GPGPU	1. 3D Graphics Pipeline 2. hardware Development 3. Farly GPGPU	참고문헌, ppt 교안	35			
		2	cuda-install	 Defore installation CUDA-capable GPU CUDA installation steps 	 before installation CUDA-capable GPU CUDA installation steps 		23			
		3	memcpy	1. simple CUDA model 1. simple CUDA model - host, device - host, devi 2. CUDA memory copy 2. CUDA memory copy	1. simple CUDA model - host, device 2. CUDA memory copy		25			
		1	errorCheck	1. host-device memory copy example 2. CUDA function rules	1. host-device memory copy example 2. CUDA function rules		27			

3	CUDA Memories Performance Consideration	2	CPU-kernel	 CUDA programming model CUDA function declarations vector addition example 	 CUDA programming model CUDA function declarations vector addition example 	참고문헌, ppt 교안	25
		3	CUDA-kernel	 CUDA programming model CUDA function declarations vector addition example 	 CUDA programming model CUDA function declarations vector addition example 		25
4		1	kernel-launch	 process and thread CUDA programming model kernel launch 	1. process and thread 2. CUDA programming model 3. kernel launch	참고문헌, ppt 교안	20
	Floating-Point Considerations Parallel Patterns	2	matrix-add	 CUDA thread hierarchy matrix addition example host implementation 	 CUDA thread hierarchy matrix addition example host implementation 		26
		3	matrix-mult	1. matrix multiplication example 2. host implementation	1. matrix multiplication example 2. host implementation		26
		1	thread-and-gpu	1. CUDA hardware - G80 architecture - Pascal architecture	1. CUDA hardware - G80 architecture - Pascal architecture		28
5	Parallel Patterns, again	2	tiled-matrix-mult	 Review for the problem Thread Layout – single block 	1. Review for the problem 2. Thread Layout – single block	참고문헌, ppt 교안	28
		3	device-query	 Review for the kernel function Detailed Source Codes 	1. Review for the kernel function 2. Detailed Source Codes		30
6		1	time-funcs	1. Get the current time 2. sleep() function 3. OuervPerformanceCounter(Get the current time sleep() function OuervPerformanceCounter(25
	Application Case Studeis	2	memHier1	 von Neumann Architecture instruction cycles History of Parallelism 	 von Neumann Architecture instruction cycles History of Parallelism 	참고문헌, ppt 교안	28
		3	memHier2	 CUDA memory hierarchy registers shared memory 	 CUDA memory hierarchy registers shared memory 		25
7		1	adjDiff1	1. Example: Adjacent Difference 2. Host version	1. Example: Adjacent Difference 2. Host version		33
	Parallel Programming and Computational Thinking) and 2 king	adjDiff2	1. Example: Adjacent Difference 2. Shared Memory Use	1. Example: Adjacent Difference 2. Shared Memory Use	참고문헌, ppt 교안	25
		3	sharedMatMult	1. Example: matrix multiplication 2. Tile load to shared memory	1. Example: matrix multiplication 2. Tile load to shared memory		26

				т. слатріє. тастіл	т. сланиріе. тнацих		
8	Introduction to OpenCL Platfrom, Context, Device	1	sharedMatMult	multiplication	multiplication		29
				ി. Tile '734' toatny ഗ്രസ്താം	· 1. Tele 1734 troating point	참고문헌,	
		2	float	standards	standards		24
				2. pyrmanlienskrivnyranautation	2. pyrranlienduron (rangention	ppt 교안	
		3	dram	access memory)	access memory)		27
				2. RRANG grangimting	2. Rentor and interior		
9	OpenCL Programming OpenCL Built-in functions	1	memCoalescing	2. Memory access examples	2. Memory access examples		24
				2. Stridnustridnaticases	7. Stridnarticases		
		2	bankConflicts	2 shared memory handling	2 shared memory handling	참고문헌,	23
		-		- harled memory	harlsed memory	ppt 교안	
		3	occupancy				21
		J					
		-				참고문헌, ppt 교안	24
		1	control	has only one control logic	has only one control logic		
		2	atomic1	1. Racter Cuthaitions	1. Racter cluthattions		25
10	EGL and Shaders.			2. Atomics	2. Atomics		
		3	atomic2	2. Atomics AS operation:	- 1. Atomics CAS opporation:		
				2. Histogram Example	2. Histogram Example		24
				1. keducavir roblem	1. keducavirriobiem		
		1	reduction1	2. Sequential Reduction	2. Sequential Reduction	참고문헌, ppt 교안	26
	- OpenGL ES Shader Language -	2		1. Redthenon Problem	1. κεάτου Ριοριεπι		
11			reduction2	2. A Sum Reduction Example	2. A Sum Reduction Example		26
							-
			reduction3	2 Parallel Reduction	2 Parallel Reduction		24
		5	reductions	2. Convertial Addition	2. Convential Addition		21
		1	raduction 1	2. Devalled Deduction	2. Devalled Deduction		21
12		T	reduction4	2. Parallel Reduction	2. Parallel Reduction		51
	Program and Kernel	2		1. Streaming operation =		참고문헌,	
	Buffer and Sub-buffer	2	streaming	definition	definition	ppt 교안	28
		3	asyncCopy	1. synthronious streaming	1. synthronious streaming		17
				case	case		
				2. sorady Aigunatins mine	2. sorady Aigunatins mine		
	Image, Sampler, Event Interaction with OpenGL	1	sorting	2. Sorting Networks	2. Sorting Networks	참고문헌, ppt 교안	24
		. –		<u>т. варастярис</u>	1. 6NOMETSTOFF		
13		th OpenGL	bitonicSort	2. Bitonic Sort Network	2. Bitonic Sort Network		29
				2 Implementations	2 Implementations		

1 1	1	1	1. Search for Unsured List	T. SEGICITION OUPOLIER FIST	I	
	3	search	- Sequential Search	- Sequential Search		24
			2. Cooncle for Control List	2 Coords for Control List		