

Embedded Computer Architecture

5SIAO

2021-2022 Lectures: Monday 3,4 (Auditorium 13) and Wednesday 9,10 (Auditorium 09 + 16)

Q2 Teacher: Henk Corporaal

Teaching assistants: Patrick Wijnings, Sun Wei, Ali Banagozar

Guest lectures: Maurice Peemen, Gert-Jan vd Braak

Lab deadlines: Dec 12, Jan 9 and Jan before 23.59h; Exam Jan 31 at 13.30h

Schedule

Date	Topic	Book H&P
15 Nov	Overview + Fundamentals of Computer Architecture	Ch 1
17 Nov	RISC/MIPS recap (1): ISA (Instruction-Set Architecture)	App A
	DSE/Simulation Lab < Dec 12	
22 Nov	Memory hierarchy 1	Ch 2+App B
24 Nov	Simulation + Loop trafos (Intro)	Dubois ch 9
29 Nov	RISC/MIPS recap (2): pipelining/hazards	App C
1 Dec	Memory hierarchy 2, incl. Flash memory, Virtual Memory	Ch 2
6 Dec	DLP Architectures: Vector, SIMD and GPU architectures	Ch 4.1-4.3, 4.5
	GPU lab < Jan 9	
8 Dec	GPU: Gert-Jan van den Braak (Philips Medical Systems)	Ch 4.4
13 Dec	ILP Architecturen 1: Out-of-Order execution	Ch 3
15 Dec	ILP Architecturen 2: Branch Pred + Multiple Issue architectures	Ch 3
20 Dec	ILP Architectures 3: TTA, How much ILP, compiler support	Ch 3
22 Dec	CGRA arch (video) + CGRA Lab	
	CGRA lab < Jan 21	
10 Jan	Multi-threading/processing + Networks-on-Chip	Ch 5
12 Jan	Domain-Specific Arch + ML: Maurice Peemen (FisherScientific)	Ch 7.1-7.4
	Try-out exam online	
17 Jan	Coherence, synchr. and consistency 1	Ch 5.3
19 Jan	Coherence, synchr. and consistency 2 + Wrap up	Ch 5.5-5.6