

chArm-v1: Subset of Arm A64 Instruction Set for C S 429, Fall 2022

Category	Opcode	Section	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Format	
Data transfer	LDURB	C6.2.203	0	0	1	1	1	0	0	0	0	1	0										0	0											M	
	LDURH	C6.2.204	0	1	1	1	1	0	0	0	0	1	0										0	0										M		
	LDUR	C6.2.202	1	x	1	1	1	0	0	0	0	1	0										0	0										M		
	STURB	C6.2.347	0	0	1	1	1	0	0	0	0	0	0										0	0										M		
	STURH	C6.2.348	0	1	1	1	1	0	0	0	0	0	0										0	0										M		
	STUR	C6.2.346	1	x	1	1	1	0	0	0	0	0	0	0									0	0										M		
	MOVK	C6.2.225	x	1	1	1	0	0	1	0	1																							I		
MOVZ	C6.2.227	x	1	0	1	0	0	1	0	1																								I		
Computation (arithmetic, logical, shift)	ADD	C6.2.4	x	0	0	1	0	0	0	1	0																								RI	
	ADD	C6.2.5	x	0	0	0	1	0	1	1																									RR	
	ADDS	C6.2.8	x	0	1	1	0	0	0	1	0																								RI	
	ADDS	C6.2.9	x	0	1	0	1	0	1	1																									RR	
	SUB	C6.2.357	x	1	0	1	0	0	0	1	0																								RI	
	SUB	C6.2.358	x	1	0	0	1	0	1	1																									RR	
	SUBS	C6.2.363	x	1	1	1	0	0	0	1	0																								RI	
	SUBS	C6.2.364	x	1	1	0	1	0	1	1																									RR	
	MVN	C6.2.233	x	0	1	0	1	0	1	0			1												1	1	1	1	1						RR	
	ORR	C6.2.240	x	0	1	1	0	0	1	0	0																									RI
	ORR	C6.2.241	x	0	1	0	1	0	1	0			0																							RR
	EOR	C6.2.119	x	1	0	1	0	0	1	0	0																									RI
	EOR	C6.2.120	x	1	0	0	1	0	1	0			0																							RR
	AND	C6.2.12	x	0	0	1	0	0	1	0	0																									RI
	AND	C6.2.13	x	0	0	0	1	0	1	0			0																							RR
	ANDS	C6.2.14	x	1	1	1	0	0	1	0	0																									RI
	ANDS	C6.2.15	x	1	1	0	1	0	1	0			0																							RR
	LSL	C6.2.213	x	1	0	1	0	0	1	1	0																									RI
	LSR	C6.2.216	x	1	0	1	0	0	1	1	0									1	1	1	1	1											RI	
	ASR	C6.2.17	x	0	0	1	0	0	1	1	0									1	1	1	1	1											RI	
Control transfer	B	C6.2.25	0	0	0	1	0	1																												B1
	BR	C6.2.37	1	1	0	1	0	1	1	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0						0	0	0	0	0	B5	
	B.cond	C6.2.26	0	1	0	1	0	1	0	0																									B2	
	CBNZ	C6.2.46	x	0	1	1	0	1	0	1																									B3	
	CBZ	C6.2.47	x	0	1	1	0	1	0	0																									B3	
	TBNZ	C6.2.374	x	0	1	1	0	1	1	1																									B4	
	TBZ	C6.2.375	x	0	1	1	0	1	1	0																									B4	
	BL	C6.2.34	1	0	0	1	0	1																											B1	
	BLR	C6.2.35	1	1	0	1	0	1	1	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0						0	0	0	0	0	B5	
RET	C6.2.254	1	1	0	1	0	1	1	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0						0	0	0	0	0	B5		
Misc	NOP	C6.2.238	1	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	0	0	1	0	0	0		0	0	0	0	0	1	1	1	1	1	S
	HLT	C6.2.127	1	1	0	1	0	1	0	0	0	1	0																	0	0	0	0	0	S	

M-format

I-format

RR-format

RI-format

B1-format

B2-format

B3-format

B4-format

B5-format

S-format