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# ARM7 and ARM9 opcode map, w/ Thumb

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The following is a full opcode map of instructions for the ARM7 and ARM9 series of CPU cores. Instructions added for ARM9 are highlighted in blue, and instructions specific to the M-extension are shown in green.

The Thumb instruction set is also included, in Table 2.

*Table 1. ARM Opcode Map.*

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	AND lli	AND llr	AND lri	AND lrr	AND ari	AND arr	AND rri	AND rrr	AND lli	MUL	AND lri ptrm	STRH ptrm	AND ari	LDRD ptrm	AND rri	STRD ptrm
01	ANDS lli	ANDS llr	ANDS lri	ANDS lrr	ANDS ari	ANDS arr	ANDS rri	ANDS rrr	ANDS lli	MULS	ANDS lri ptrm	LDRH ptrm	ANDS ari	LDRSB ptrm	ANDS rri	LDRSH ptrm
02	EOR lli	EOR llr	EOR lri	EOR lrr	EOR ari	EOR arr	EOR rri	EOR rrr	EOR lli	MLA	EOR lri ptrm	STRH ptrm	EOR ari	LDRD ptrm	EOR rri	STRD ptrm
03	EORS lli	EORS llr	EORS lri	EORS lrr	EORS ari	EORS arr	EORS rri	EORS rrr	EORS lli	MLAS	EORS lri ptrm	LDRH ptrm	EORS ari	LDRSB ptrm	EORS rri	LDRSH ptrm
04	SUB lli	SUB llr	SUB lri	SUB lrr	SUB ari	SUB arr	SUB rri	SUB rrr	SUB lli	SUB lri	STRH ptim	SUB ari	LDRD ptim	SUB rri	STRD ptim	
05	SUBS lli	SUBS llr	SUBS lri	SUBS lrr	SUBS ari	SUBS arr	SUBS rri	SUBS rrr	SUBS lli	SUBS lri ptrm	LDRH ptrm	SUBS ari	LDRSB ptrm	SUBS rri	LDRSH ptrm	
06	RSB lli	RSB llr	RSB lri	RSB lrr	RSB ari	RSB arr	RSB rri	RSB rrr	RSB lli	RSB lri	STRH ptim	RSB ari	LDRD ptim	RSB rri	STRD ptim	
07	RSBS lli	RSBS llr	RSBS lri	RSBS lrr	RSBS ari	RSBS arr	RSBS rri	RSBS rrr	RSBS lli	RSBS lri ptrm	LDRH ptrm	RSBS ari	LDRSB ptrm	RSBS rri	LDRSH ptrm	
08	ADD lli	ADD llr	ADD lri	ADD lrr	ADD ari	ADD arr	ADD rri	ADD rrr	ADD lli	UMULL	ADD lri	STRH ptrp	ADD ari	LDRD ptrp	ADD rri	STRD ptrp
09	ADDS lli	ADDS llr	ADDS lri	ADDS lrr	ADDS ari	ADDS arr	ADDS rri	ADDS rrr	ADDS lli	UMULLS	ADDS lri ptrp	LDRH ptrp	ADDS ari	LDRSB ptrp	ADDS rri	LDRSH ptrp
0A	ADC lli	ADC llr	ADC lri	ADC lrr	ADC ari	ADC arr	ADC rri	ADC rrr	ADC lli	UMLAL	ADC lri	STRH ptrp	ADC ari	LDRD ptrp	ADC rri	STRD ptrp
0B	ADCS lli	ADCS llr	ADCS lri	ADCS lrr	ADCS ari	ADCS arr	ADCS rri	ADCS rrr	ADCS lli	UMLALS	ADCS lri ptrp	LDRH ptrp	ADCS ari	LDRSB ptrp	ADCS rri	LDRSH ptrp
0C	SBC lli	SBC llr	SBC lri	SBC lrr	SBC ari	SBC arr	SBC rri	SBC rrr	SBC lli	SMULL	SBC lri	STRH ptip	SBC ari	LDRD ptip	SBC rri	STRD ptip

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0D	SBCS lli	SBCS llr	SBCS lri	SBCS lrr	SBCS ari	SBCS arr	SBCS rrr	SBCS rrr	SBCS lli	SMULLS	SBCS lri	LDRH ptip	SBCS ari	LDRSB ptip	SBCS rri	LDRSH ptip
0E	RSC lli	RSC llr	RSC lri	RSC lrr	RSC ari	RSC arr	RSC rrr	RSC rrr	RSC lli	SMLAL	RSC lri	STRH ptip	RSC ari	LDRD ptip	RSC rri	STRD ptip
0F	RSCS lli	RSCS llr	RSCS lri	RSCS lrr	RSCS ari	RSCS arr	RSCS rrr	RSCS rrr	RSCS lli	SMLALS	RSCS lri	LDRH ptip	RSCS ari	LDRSB ptip	RSCS rri	LDRSH ptip
10	MRS rc MRS rs					QADD			SMLABB	SWP	SMLATB	STRH ofrm	SMLABT ofrm	LDRD ofrm	SMLATT ofrm	STRD ofrm
11	TSTS lli	TSTS llr	TSTS lri	TSTS lrr	TSTS ari	TSTS arr	TSTS rrr	TSTS rrr	TSTS lli		TSTS lri	LDRH ofrm	TSTS ari	LDRSB ofrm	TSTS rri	LDRSH ofrm
12	MSR rc MSR rs	BX CLZ		BLX reg		QSUB		BKPT	SMLAWB		SMULWB	STRH prrm	SMLAWT prrm	LDRD prrm	SMULWT prrm	STRD prrm
13	TEQS lli	TEQS llr	TEQS lri	TEQS lrr	TEQS ari	TEQS arr	TEQS rrr	TEQS rrr	TEQS lli		TEQS lri	LDRH prrm	TEQS ari	LDRSB prrm	TEQS rri	LDRSH prrm
14	MRS rs					QDADD			SMLALBB	SWPB	SMLALTB	STRH ofim	SMLALBT ofim	LDRD ofim	SMLALTT ofim	STRD ofim
15	CMPS lli	CMPS llr	CMPS lri	CMPS lrr	CMPS ari	CMPS arr	CMPS rrr	CMPS rrr	CMPS lli		CMPS lri	LDRH ofim	CMPS ari	LDRSB ofim	CMPS rri	LDRSH ofim
16	MSR rs	CLZ				QDSUB			SMULBB		SMULTB	STRH prim	SMULBT prim	LDRD prim	SMULTT prim	STRD prim
17	CMNS lli	CMNS llr	CMNS lri	CMNS lrr	CMNS ari	CMNS arr	CMNS rrr	CMNS rrr	CMNS lli		CMNS lri	LDRH prim	CMNS ari	LDRSB prim	CMNS rri	LDRSH prim
18	ORR lli	ORR llr	ORR lri	ORR lrr	ORR ari	ORR arr	ORR rrr	ORR rrr	ORR lli		ORR lri	STRH ofrp	ORR ari	LDRD ofrp	ORR rri	STRD ofrp
19	ORRS lli	ORRS llr	ORRS lri	ORRS lrr	ORRS ari	ORRS arr	ORRS rrr	ORRS rrr	ORRS lli		ORRS lri	LDRH ofrp	ORRS ari	LDRSB ofrp	ORRS rri	LDRSH ofrp
1A	MOV lli	MOV llr	MOV lri	MOV lrr	MOV ari	MOV arr	MOV rrr	MOV rrr	MOV lli		MOV lri	STRH prrp	MOV ari	LDRD prrp	MOV rri	STRD prrp
1B	MOVS lli	MOVS llr	MOVS lri	MOVS lrr	MOVS ari	MOVS arr	MOVS rrr	MOVS rrr	MOVS lli		MOVS lri	LDRH prrp	MOVS ari	LDRSB prrp	MOVS rri	LDRSH prrp
1C	BIC lli	BIC llr	BIC lri	BIC lrr	BIC ari	BIC arr	BIC rrr	BIC rrr	BIC lli		BIC lri	STRH ofip	BIC ari	LDRD ofip	BIC rri	STRD ofip
1D	BICS lli	BICS llr	BICS lri	BICS lrr	BICS ari	BICS arr	BICS rrr	BICS rrr	BICS lli		BICS lri	LDRH ofip	BICS ari	LDRSB ofip	BICS rri	LDRSH ofip
1E	MVN lli	MVN llr	MVN lri	MVN lrr	MVN ari	MVN arr	MVN rrr	MVN rrr	MVN lli		MVN lri	STRH prip	MVN ari	LDRD prip	MVN rri	STRD prip
1F	MVNS lli	MVNS llr	MVNS lri	MVNS lrr	MVNS ari	MVNS arr	MVNS rrr	MVNS rrr	MVNS lli		MVNS lri	LDRH prip	MVNS ari	LDRSB prip	MVNS rri	LDRSH prip
20	AND imm															
21	ANDS imm															
22	EOR imm															
23	EORS imm															
24	SUB imm															

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
25	SUBS imm															
26	RSB imm															
27	RSBS imm															
28	ADD imm															
29	ADDS imm															
2A	ADC imm															
2B	ADCS imm															
2C	SBC imm															
2D	SBCS imm															
2E	RSC imm															
2F	RSQS imm															
30																
31	TSTS imm															
32	MSR ic															
33	TEQS imm															
34																
35	CMPS imm															
36	MSR is															
37	CMNS imm															
38	ORR imm															
39	ORRS imm															
3A	MOV imm															
3B	MOVS imm															
3C	BIC imm															
3D	BICS imm															
3E	MVN imm															
3F	MVNS imm															
40	STR ptim															
41	LDR ptim															
42	STRT ptim															
43	LDRT ptim															
44	STRB ptim															
45	LDRB ptim															
46	STRBT ptim															
47	LDRBT ptim															
48	STR ptip															
49	LDR ptip															
4A	STRT ptip															
4B	LDRT ptip															

Bits 27- 20	Bits 7-4														
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
4C	STRB ptip														
4D	LDRB ptip														
4E	STRBT ptip														
4F	LDRBT ptip														
50	STR ofim														
51	LDR ofim														
52	STR prim														
53	LDR prim														
54	STRB ofim														
55	LDRB ofim														
56	STRB prim														
57	LDRB prim														
58	STR ofip														
59	LDR ofip														
5A	STR prip														
5B	LDR prip														
5C	STRB ofip														
5D	LDRB ofip														
5E	STRB prip														
5F	LDRB prip														
60	STR ptrmll	STR ptrmlr	STR ptrmar	STR ptrmrr	STR ptrmll	STR ptrmlr	STR ptrmar	STR ptrmrr	STR ptrmll	STR ptrmlr	STR ptrmar	STR ptrmrr	STR ptrmll	STR ptrmlr	STR ptrmar
61	LDR ptrmll	LDR ptrmlr	LDR ptrmar	LDR ptrmrr	LDR ptrmll	LDR ptrmlr	LDR ptrmar	LDR ptrmrr	LDR ptrmll	LDR ptrmlr	LDR ptrmar	LDR ptrmrr	LDR ptrmll	LDR ptrmlr	LDR ptrmar
62	STRT ptrmll	STRT ptrmlr	STRT ptrmar	STRT ptrmrr	STRT ptrmll	STRT ptrmlr	STRT ptrmar	STRT ptrmrr	STRT ptrmll	STRT ptrmlr	STRT ptrmar	STRT ptrmrr	STRT ptrmll	STRT ptrmlr	STRT ptrmar
63	LDRT ptrmll	LDRT ptrmlr	LDRT ptrmar	LDRT ptrmrr	LDRT ptrmll	LDRT ptrmlr	LDRT ptrmar	LDRT ptrmrr	LDRT ptrmll	LDRT ptrmlr	LDRT ptrmar	LDRT ptrmrr	LDRT ptrmll	LDRT ptrmlr	LDRT ptrmar
64	STRB ptrmll	STRB ptrmlr	STRB ptrmar	STRB ptrmrr	STRB ptrmll	STRB ptrmlr	STRB ptrmar	STRB ptrmrr	STRB ptrmll	STRB ptrmlr	STRB ptrmar	STRB ptrmrr	STRB ptrmll	STRB ptrmlr	STRB ptrmar
65	LDRB ptrmll	LDRB ptrmlr	LDRB ptrmar	LDRB ptrmrr	LDRB ptrmll	LDRB ptrmlr	LDRB ptrmar	LDRB ptrmrr	LDRB ptrmll	LDRB ptrmlr	LDRB ptrmar	LDRB ptrmrr	LDRB ptrmll	LDRB ptrmlr	LDRB ptrmar
66	STRBT ptrmll	STRBT ptrmlr	STRBT ptrmar	STRBT ptrmrr	STRBT ptrmll	STRBT ptrmlr	STRBT ptrmar	STRBT ptrmrr	STRBT ptrmll	STRBT ptrmlr	STRBT ptrmar	STRBT ptrmrr	STRBT ptrmll	STRBT ptrmlr	STRBT ptrmar
67	LDRBT ptrmll	LDRBT ptrmlr	LDRBT ptrmar	LDRBT ptrmrr	LDRBT ptrmll	LDRBT ptrmlr	LDRBT ptrmar	LDRBT ptrmrr	LDRBT ptrmll	LDRBT ptrmlr	LDRBT ptrmar	LDRBT ptrmrr	LDRBT ptrmll	LDRBT ptrmlr	LDRBT ptrmar
68	STR ptrpll	STR ptrpllr	STR ptrpar	STR ptrprr	STR ptrpll	STR ptrpllr	STR ptrpar	STR ptrprr	STR ptrpll	STR ptrpllr	STR ptrpar	STR ptrprr	STR ptrpll	STR ptrpllr	STR ptrpar
69	LDR ptrpll	LDR ptrpllr	LDR ptrpar	LDR ptrprr	LDR ptrpll	LDR ptrpllr	LDR ptrpar	LDR ptrprr	LDR ptrpll	LDR ptrpllr	LDR ptrpar	LDR ptrprr	LDR ptrpll	LDR ptrpllr	LDR ptrpar
6A	STRT ptrpll	STRT ptrpllr	STRT ptrpar	STRT ptrprr	STRT ptrpll	STRT ptrpllr	STRT ptrpar	STRT ptrprr	STRT ptrpll	STRT ptrpllr	STRT ptrpar	STRT ptrprr	STRT ptrpll	STRT ptrpllr	STRT ptrpar

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6B	LDRT ptrpll		LDRT ptrpllr		LDRT ptrpar		LDRT ptrprr		LDRT ptrpll		LDRT ptrpllr		LDRT ptrpar		LDRT ptrprr	
6C	STRB ptrpll		STRB ptrpllr		STRB ptrpar		STRB ptrprr		STRB ptrpll		STRB ptrpllr		STRB ptrpar		STRB ptrprr	
6D	LDRB ptrpll		LDRB ptrpllr		LDRB ptrpar		LDRB ptrprr		LDRB ptrpll		LDRB ptrpllr		LDRB ptrpar		LDRB ptrprr	
6E	STRBT ptrpll		STRBT ptrpllr		STRBT ptrpar		STRBT ptrprr		STRBT ptrpll		STRBT ptrpllr		STRBT ptrpar		STRBT ptrprr	
6F	LDRBT ptrpll		LDRBT ptrpllr		LDRBT ptrpar		LDRBT ptrprr		LDRBT ptrpll		LDRBT ptrpllr		LDRBT ptrpar		LDRBT ptrprr	
70	STR ofrml1		STR ofrmlr		STR ofrmar		STR ofrmrr		STR ofrml1		STR ofrmlr		STR ofrmar		STR ofrmrr	
71	LDR ofrml1		LDR ofrmlr		LDR ofrmar		LDR ofrmrr		LDR ofrml1		LDR ofrmlr		LDR ofrmar		LDR ofrmrr	
72	STR prrml1		STR prrmlr		STR prrmar		STR prrmrr		STR prrml1		STR prrmlr		STR prrmar		STR prrmrr	
73	LDR prrml1		LDR prrmlr		LDR prrmar		LDR prrmrr		LDR prrml1		LDR prrmlr		LDR prrmar		LDR prrmrr	
74	STRB ofrml1		STRB ofrmlr		STRB ofrmar		STRB ofrmrr		STRB ofrml1		STRB ofrmlr		STRB ofrmar		STRB ofrmrr	
75	LDRB ofrml1		LDRB ofrmlr		LDRB ofrmar		LDRB ofrmrr		LDRB ofrml1		LDRB ofrmlr		LDRB ofrmar		LDRB ofrmrr	
76	STRB prrml1		STRB prrmlr		STRB prrmar		STRB prrmrr		STRB prrml1		STRB prrmlr		STRB prrmar		STRB prrmrr	
77	LDRB prrml1		LDRB prrmlr		LDRB prrmar		LDRB prrmrr		LDRB prrml1		LDRB prrmlr		LDRB prrmar		LDRB prrmrr	
78	STR ofrpll		STR ofrpllr		STR ofrpar		STR ofrprr		STR ofrpll		STR ofrpllr		STR ofrpar		STR ofrprr	
79	LDR ofrpll		LDR ofrpllr		LDR ofrpar		LDR ofrprr		LDR ofrpll		LDR ofrpllr		LDR ofrpar		LDR ofrprr	
7A	STR prrpll		STR prrpllr		STR prrpar		STR prrprr		STR prrpll		STR prrpllr		STR prrpar		STR prrprr	
7B	LDR prrpll		LDR prrpllr		LDR prrpar		LDR prrprr		LDR prrpll		LDR prrpllr		LDR prrpar		LDR prrprr	
7C	STRB ofrpll		STRB ofrpllr		STRB ofrpar		STRB ofrprr		STRB ofrpll		STRB ofrpllr		STRB ofrpar		STRB ofrprr	
7D	LDRB ofrpll		LDRB ofrpllr		LDRB ofrpar		LDRB ofrprr		LDRB ofrpll		LDRB ofrpllr		LDRB ofrpar		LDRB ofrprr	
7E	STRB prrpll		STRB prrpllr		STRB prrpar		STRB prrprr		STRB prrpll		STRB prrpllr		STRB prrpar		STRB prrprr	
7F	LDRB prrpll		LDRB prrpllr		LDRB prrpar		LDRB prrprr		LDRB prrpll		LDRB prrpllr		LDRB prrpar		LDRB prrprr	
80	STMADA															
81	LDMADA															

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
82	STMDA w															
83	LDMDA w															
84	STMDA u															
85	LDMDA u															
86	STMDA uw															
87	LDMDA uw															
88	STMIA															
89	LDMIA															
8A	STMIA w															
8B	LDMIA w															
8C	STMIA u															
8D	LDMIA u															
8E	STMIA uw															
8F	LDMIA uw															
90	STMDB															
91	LDMDB															
92	STMDB w															
93	LDMDB w															
94	STMDB u															
95	LDMDB u															
96	STMDB uw															
97	LDMDB uw															
98	STMIB															
99	LDMIB															
9A	STMIB w															
9B	LDMIB w															
9C	STMIB u															
9D	LDMIB u															
9E	STMIB uw															
9F	LDMIB uw															
A0	B															
A1																
A2																
A3																
A4																
A5																
A6																
A7																
A8																

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A9																
AA																
AB																
AC																
AD																
AE																
AF																
B0																
B1																
B2																
B3																
B4																
B5																
B6																
B7																BL
B8																
B9																
BA																
BB																
BC																
BD																
BE																
BF																
C0											STC ofm					
C1											LDC ofm					
C2											STC prm					
C3											LDC prm					
C4											STC ofm					
C5											LDC ofm					
C6											STC prm					
C7											LDC prm					
C8											STC ofp					
C9											LDC ofp					
CA											STC prp					
CB											LDC prp					
CC											STC ofp					
CD											LDC ofp					
CE											STC prp					
CF											LDC prp					

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D0	STC unm															
D1	LDC unm															
D2	STC ptm															
D3	LDC ptm															
D4	STC unm															
D5	LDC unm															
D6	STC ptm															
D7	LDC ptm															
D8	STC unp															
D9	LDC unp															
DA	STC ptp															
DB	LDC ptp															
DC	STC unp															
DD	LDC unp															
DE	STC ptp															
DF	LDC ptp															
E0	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR
E1	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC
E2	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR
E3	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC
E4	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR
E5	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC
E6	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR
E7	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP	CDP
E8	MCR	MRC	MCR													
E9	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC
EA	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR
EB	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC
EC	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR
ED	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC
EE	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MCR	MRC	MCR	MCR	MCR	MCR	MCR	MCR
EF	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC	MRC
F0	SWI															
F1																
F2																
F3																
F4																
F5																
F6																

Bits 27- 20	Bits 7-4															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F7	F8	F9	FA	FB	FC	FD	FE	FF								
F8																
F9																
FA																
FB																
FC																
FD																
FE																
FF																

Table 2. Thumb Opcode Map.

Bits 15- 12	Bits 11-8															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	LSL imm								LSR imm							
1	ASR imm								ADD reg		SUB reg		ADD imm3		SUB imm3	
2	MOV i8r0	MOV i8r1	MOV i8r2	MOV i8r3	MOV i8r4	MOV i8r5	MOV i8r6	MOV i8r7	CMP i8r0	CMP i8r1	CMP i8r2	CMP i8r3	CMP i8r4	CMP i8r5	CMP i8r6	CMP i8r7
3	ADD i8r0	ADD i8r1	ADD i8r2	ADD i8r3	ADD i8r4	ADD i8r5	ADD i8r6	ADD i8r7	SUB i8r0	SUB i8r1	SUB i8r2	SUB i8r3	SUB i8r4	SUB i8r5	SUB i8r6	SUB i8r7
4	DP g1 DP g2	DP g3 DP g4	ADDH ADDH	CMPH CMPH	MOVH MOVH	BX reg	LDRPC r0	LDRPC r1	LDRPC r2	LDRPC r3	LDRPC r4	LDRPC r5	LDRPC r6	LDRPC r7		
5	STR reg	STRH reg	STRB reg	LDRSB reg		LDR reg	LDRH reg	LDRB reg	LDRSH reg							
6	STR imm5								LDR imm5							
7	STRB imm5								LDRB imm5							
8	STRH imm5								LDRH imm5							
9	STRSP r0	STRSP r1	STRSP r2	STRSP r3	STRSP r4	STRSP r5	STRSP r6	STRSP r7	LDRSP r0	LDRSP r1	LDRSP r2	LDRSP r3	LDRSP r4	LDRSP r5	LDRSP r6	LDRSP r7
A	ADDPC r0	ADDPC r1	ADDPC r2	ADDPC r3	ADDPC r4	ADDPC r5	PUSH r6	PUSH lr								
B	ADDSP imm7				PUSH									POP pc	BKPT	
C	STMIA r0	STMIA r1	STMIA r2	STMIA r3	STMIA r4	STMIA r5	STMIA r6	STMIA r7	LDMIA r0	LDMIA r1	LDMIA r2	LDMIA r3	LDMIA r4	LDMIA r5	LDMIA r6	LDMIA r7
D	BEQ	BNE	BCS	BCC	BMI	BPL	BVS	BVC	BHI	BLS	BGE	BLT	BGT	BLE		SWI
E	B								BLX off							
F	BL setup								BL off							

Table 2A. Thumb  
Opcode Map -  
Register/Register Data  
Processing.

Bits 9-8	Bits 7-6			
	0	1	2	3
0	AND	EOR	LSL	LSR
1	ASR	ADD	SUB	ROR
2	TST	NEG	CMP	CMN
3	ORR	MUL	BIC	MVN

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