

ADK
ADKL

Add constant

ADK
ADKL

P851M
P852M
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Syntax: [label] □ ADK □ r3, k - T8
 [label] □ ADKL □ r1, lk - T2

T8 The positive constant k is added to the contents of the register specified in $r3$. The result of the addition is placed in $r3$.

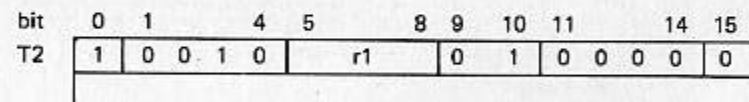
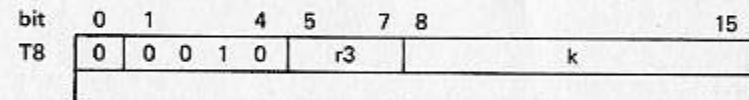
T2 The positive or negative constant lk is added to the contents of the register specified in $r1$. The result of the addition is placed in $r1$.

Type	Function
T8	$(r3) + k \rightarrow r3$
T2	$(r1) + lk \rightarrow r1$

Syntax
 ADK r3, k
 ADKL r1, lk

Condition register:

CR = 0 if result = 0
 1 if result > 0
 2 if result < 0
 3 in case of overflow



Remark:
 Restricted to system mode if $r1 = A15$.

ADR
ADRS

Addition register/register

ADR
ADRS

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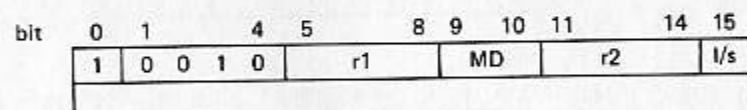
Syntax: [label] □ ADR [*] □ r1, r2
[label] □ ADRS □ r1, r2

The contents of the register specified by r1 are added either to the contents of the register specified by r2 (direct addressing), in which case the sum is always placed in the register specified by r1, or to the contents of the memory address indicated in the register specified by r2 (indirect addressing). In that case the sum is placed either in the register specified by r1 (the l/s indicator being 0) or in the memory address (l/s = 1).

Type	Function	MD	l/s	Syntax
T1	(r1) + (r2) → r1	00	n.s.	ADR r1, r2
T3	(r1) + ((r2)) → r1	01	0	ADR* r1, r2
T3	(r1) + ((r2)) → (r2)	01	1	ADRS r1, r2

Condition register:

CR = 0 if result = 0
1 if result > 0
2 if result < 0
3 in case of overflow



Remarks:

- * When l/s = 1 (store), r1 must be ≠ 0.
- * Restricted to system mode if r1 = A15.

AD
ADS

Addition

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ADS

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Syntax: [label] □ AD [S] [*] □ r1, m[, r2]

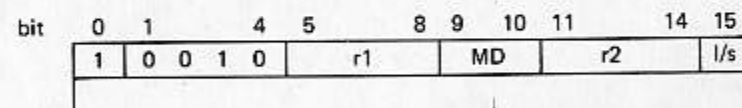
The contents of the effective memory address are added to the contents of the register specified by r1.

The sum is placed either in the register specified by r1, in which case the load/store must be 0, or in the effective memory address when the load/store indicator is 1.

Type	Function	MD	l/s	Syntax
T4	(r1) + (m) → r1	10	0	AD r1, m
T4	(r1) + (m) → m	10	1	ADS r1, m
T5	(r1) + (m + (r2)) → r1	10	0	AD r1, m, r2
T5	(r1) + (m + (r2)) → m + (r2)	10	1	ADS r1, m, r2
T6	(r1) + ((m)) → r1	11	0	AD* r1, m
T6	(r1) + ((m)) → (m)	11	1	ADS* r1, m
T7	(r1) + ((m + (r2))) → r1	11	0	AD* r1, m, r2
T7	(r1) + ((m + (r2))) → (m + (r2))	11	1	ADS* r1, m, r2

Condition register:

CR = 0 if result = 0
1 if result > 0
2 if result < 0
3 in case of overflow



Remarks:

- * When l/s = 1, r1 must be ≠ 0.
- * Restricted to system mode if r1 = A15.

IMR*Increment memory/register***IMR**
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Syntax: [label] □ IMR □ r2

The contents of the effective memory address indicated in the register specified by r2 (indirect) are increased by one.

Type	Function	Syntax
T3	$((r2)) + 1 \rightarrow (r2)$	IMR r2

Condition register:

CR = 0 if result = 0
 1 if result > 0
 2 if result < 0
 3 in case of overflow

bit	0	1	4	5	8	9	10	11	14	15		
	1	0	0	1	0	0	0	0	0	1	r2	1

IM*Increment memory***IM**
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Syntax: [label] □ IM [*] □ m [, r2]

This instruction increases by 1 the contents of the effective memory address, after which the value of the effective memory address is replaced by the new value.

Type	Function	MD	Syntax
T4	$(m) + 1 \rightarrow m$	10	IM m
T5	$(m + (r2)) + 1 \rightarrow m + (r2)$	10	IM m, r2
T6	$((m)) + 1 \rightarrow (m)$	11	IM* m
T7	$((m + (r2))) + 1 \rightarrow (m + (r2))$	11	IM* m, r2

Condition register:

CR = 0 if result = 0
 1 if result > 0
 2 if result < 0
 3 in case of overflow

bit	0	1	4	5	8	9	10	11	14	15	
	1	0	0	1	0	0	0	0	MD	r2	1

SUK
SUKL

Subtract constant

SUK
SUKL

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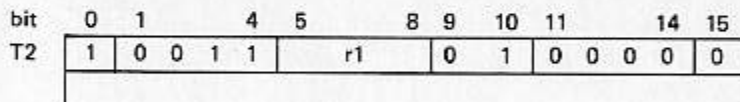
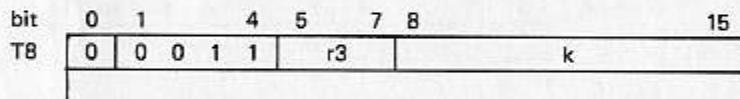
Syntax: [label] \sqsubset SUK \sqsubset r3, k - T8
[label] \sqsubset SUKL \sqsubset r1, lk - T2

- T8 The positive constant k is subtracted from the contents of the register specified in r3. The result is placed in r3.
T2 The positive or negative constant lk is subtracted from the contents of the register specified in r1. The result is placed in r1.

Type	Function	Syntax
T8	(r3) - k \rightarrow r3	SUK r3, k
T2	(r1) - lk \rightarrow r1	SUKL r1, lk

Condition register:

CR = 0 if result = 0
1 if result > 0
2 if result < 0
3 in case of overflow



Remark:
Restricted to system mode if r1 = A15.

SUR
SURS

Subtract register/register

SUR
SURS

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Syntax: [label] \sqsubset SUR [*] \sqsubset r1, r2
[label] \sqsubset SURS \sqsubset r1, r2

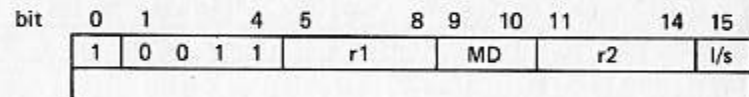
The contents of the register specified by r2 (direct addressing) or the contents of the memory address indicated in the register specified by r2 (indirect addressing) are subtracted from the contents of the 16-bit register specified by r1. The result of this operation is placed:

- (direct addressing) : in the register specified by r1
- (indirect addressing) : either in the register specified by r1 (l/s = 0) in the memory address indicated in the register specified by r2 (l/s = 1).

Type	Function	MD	l/s	Syntax
T1	(r1) - (r2) \rightarrow r1	00	0	SUR r1, r2
T3	(r1) - ((r2)) \rightarrow r1	01	0	SUR* r1, r2
T3	(r1) - ((r2)) \rightarrow (r2)	01	1	SURS r1, r2

Condition register:

CR = 0 if result = 0
1 if result > 0
2 if result < 0
3 in case of overflow



Remark:
* When l/s = 1, r1 must be \neq 0
* Restricted to system mode if r1 = A15.

SU
SUS

Subtract word

SU
SUS

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Syntax: [label] \sqsubset SU[S] [*] \sqsubset r1, m[, r2]

The contents of the effective memory address are subtracted from the contents of the register specified by r1. The result is placed in the register specified by r1, when the l/s bit is 0, or in the effective memory address when l/s is 1.

Type	Function	MD	l/s	Syntax
T4	$(r1) - (m) \rightarrow r1$	10	0	SU r1, m
T4	$(r1) - (m) \rightarrow m$	10	1	SUS r1, m
T5	$(r1) - (m + (r2)) \rightarrow r1$	10	0	SU r1, m, r2
T5	$(r1) - (m + (r2)) \rightarrow m + (r2)$	10	1	SUS r1, m, r2
T6	$(r1) - ((m)) \rightarrow r1$	11	0	SU* r1, m
T6	$(r1) - ((m)) \rightarrow (m)$	11	1	SUS* r1, m
T7	$(r1) - ((m + (r2))) \rightarrow r1$	11	0	SU* r1, m, r2
T7	$(r1) - ((m + (r2))) \rightarrow (m + (r2))$	11	1	SUS* r1, m, r2

Condition register:

CR = 0 if result = 0
1 if result > 0
2 if result < 0
3 in case of overflow

bit	0	1	4	5	8	9	10	11	14	15
	1	0	0	1	1	r1	MD	r2	l/s	

Remark:

- * When the l/s bit = 1, r1 must be $\neq 0$
- * Restricted to system mode if r1 = A15.

CWK

Compare word with constant

CWK

P851M
P852M
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P857M

Syntax: [label] \sqsubset CWK \sqsubset r1, lk

The contents of the register specified by r1 are compared with the constant. The result of this comparison is stored in the condition register.

Type	Function	Syntax
T2	$(r1) \leftrightarrow lk \rightarrow CR$	CWK r1, lk

Condition register:

CR = 0 if (r1) = lk
1 if (r1) > lk
2 if (r1) < lk

bit	0	1	4	5	8	9	10	11	14	15		
	1	1	1	0	1	r1	0	1	0	0	0	0

Remark:

Restricted to system mode if r1 = A15.

