Cheatography

Computer Architecture Cheat Sheet by skung via cheatography.com/68333/cs/17218/

ADD – Add (with overflow)

Operation: \$d = \$s + \$t;
advance_pc (4);
Syntax: add \$d, \$s, \$t
Encoding: 0000 00ss ssst
tttt dddd d000 0010 0000

AND -- Bitwise and

Operation: \$d = \$s & \$t; advance_pc (4); Syntax: and \$d, \$s, \$t Encoding: 0000 00ss ssst tttt dddd d000 0010 0100

BGEZAL -- Branch on greater than or

equal to zero and link
Operation: if \$s >= 0 \$31
= PC + 8 (or nPC + 4);
advance_pc (offset << 2));
else advance_pc (4);
Syntax: bgezal \$s, offset
Encoding: 0000 01ss sss1
0001 iiii iiii iiii iiii</pre>

BLTZAL -- Branch on less than zero and link

Operation: if \$s < 0 \$31 =
PC + 8 (or nPC + 4);
advance_pc (offset << 2));
else advance_pc (4);
Syntax: bltzal \$s, offset
Encoding: 0000 01ss sss1
0000 iiii iiii iiii iiii</pre>

ADDI -- Add immediate (with overflow)

Operation: \$t = \$s + imm;
advance_pc (4);
Syntax: addi \$t, \$s, imm
Encoding: 0010 00ss ssst
tttt iiii iiii iiii iiii

ANDI -- Bitwise and immediate

Operation: \$t = \$s & imm; advance_pc (4); Syntax: andi \$t, \$s, imm Encoding: 0011 00ss ssst tttt iiii iiii iiii iiii

ANDI -- Bitwise and immediate

Operation: \$t = \$s & imm;

Syntax: andi \$t, \$s, imm

Encoding: 0011 00ss ssst

tttt iiii iiii iiii iiii

BGTZ -- Branch on greater than zero

Operation: if \$s > 0
advance_pc (offset << 2));
else advance_pc (4);
Syntax: bgtz \$s, offset
Encoding: 0001 11ss sss0
0000 iiii iiii iiii iiii</pre>

BLTZAL -- Branch on less than zero and link

Operation: if \$s < 0 \$31 =
PC + 8 (or nPC + 4);
advance_pc (offset << 2));
else advance_pc (4);
Syntax: bltzal \$s, offset
Encoding: 0000 01ss sss1
0000 iiii iiii iiii iiii</pre>

ADDIU -- Add immediate unsigned (no overflow)

Operation: \$t = \$s + imm;
advance_pc (4);
Syntax: addiu \$t, \$s, imm
Encoding: 0010 01ss ssst
tttt iiii iiii iiii iiii

BEQ -- Branch on equal

advance_pc (4);

Operation: if \$s == \$t
advance_pc (offset << 2));
else advance_pc (4);
Syntax: beq \$s, \$t, offset
Encoding: 0001 00ss ssst
tttt iiii iiii iiii iiii</pre>

BLEZ -- Branch on less than or equal to zero

Operation: if \$s <= 0
advance_pc (offset << 2));
else advance_pc (4);
Syntax: blez \$s, offset
Encoding: 0001 10ss sss0
0000 iiii iiii iiii iiii</pre>

ADDIU -- Add immediate unsigned (no overflow)

Operation: \$t = \$s + imm;
advance_pc (4);
Syntax: addiu \$t, \$s, imm
Encoding: 0010 01ss ssst
tttt iiii iiii iiii iiii

BGEZ -- Branch on greater than zero

Operation: if \$s >= 0
advance_pc (offset << 2));
else advance_pc (4);
Syntax: bgez \$s, offset
Encoding: 0000 01ss sss0
0001 iiii iiii iiii iiii</pre>

BLTZ -- Branch on less than zero

Operation: if \$s < 0
advance_pc (offset << 2));
else advance_pc (4);
Syntax: bltz \$s, offset
Encoding: 0000 01ss sss0
0000 iiii iiii iiii iiii</pre>

ADDU -- Add unsigned (no overflow)

Operation: \$d = \$s + \$t;
advance_pc (4);
Syntax: addu \$d, \$s, \$t
Encoding: 0000 00ss ssst
tttt dddd d000 0010 0001

By skung

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