**Abacus 2 Instruction Set**

**DATA INSTRUCTIONS**

MOV *Move*

LDRF *Load Flags*

STRF *Save Flags*

XCHG *Exchange*

PUSH *Push to Stack*

PUSHF *Push Flags to Stack*

POP *Pop from Stack*

POPF *Pop Stack to Flags*

IN *Input from Port*

OUT *Output to Port*

LEA *Load Effective Address*

CBW *Convert Byte to Word*

**ARITHMETIC INSTRUCTIONS**

ADD *Add*

ADC *Add with Carry*

SUB *Subtract*

SBB *Subtract with Borrow*

INC *Increment*

DEC *Decrement*

NEG *Negate*

CMP *Compare (Subtract)*

**LOGIC INSTRUCTIONS**

AND *And*

OR *Or*

XOR *Exclusive Or*

NOT *Not*

TEST *Test (And)*

**SHIFT INSTRUCTIONS**

SHL *Shift Left*

**BRANCHING INSTRUCTIONS**

JMP *Jump Unconditionally*

JO *Jump if Overflow*

JS *Jump if Sign*

JZ *Jump if Zero*

JNZ *Jump if not* *Zero*

JC *Jump if Carry*

JNC *Jump if not Carry*

JP *Jump Parity*

**FUNCTION INSTRUCTIONS**

CALL *Call Function*

RET *Return Function*

INT *Call Interrupt*

IRET *Return Interrupt*

BRK *Call Breakpoint*

**SPECIAL INSTRUCTIONS**

CPUID *Processor Identification*

NOP *No Operation*

HLT *Halt Processor*

WAIT *Wait for Interrupt*

CLF *Clear Flag*

STF *Set Flag*

CMF *Complement Flag*

**FPU INSTRUCTIONS**

FNOP *No Operation*

FIXS *Convert Floating Point to Fixed Single*

FIXD *Convert Floating Point to Fixed Double*

FLTS *Convert Fixed Single to Floating Point*

FLTD *Convert Fixed Double to Floating Point*

CHSS *Change Sign Fixed Single*

CHSD *Change Sign Fixed Double*

CHSF *Change Sign Floating Point*

XCHS *Exchange TOS/NOS Fixed Single*

XCHD *Exchange TOS/NOS Fixed Double*

XCHF *Exchange TOS/NOS Floating Point*

POPS *Pop Fixed Single from Stack*

POPD *Pop Fixed Double from Stack*

POPF *Pop Floating Point from Stack*

PTOS *Push Fixed Single to Stack*

PTOD *Push Fixed Double to Stack*

PTOF *Push Floating Point to Stack*

PUPI *Push Pi to Stack*

SADD *Add Fixed Single*

SSUB *Subtract Fixed Single*

SMUL *Multiply Fixed Single (Lower)*

SMUU *Multiply Fixed Single (Upper)*

SDIV *Divide Fixed Single*

DADD *Add Fixed Double*

DSUB *Subtract Fixed Double*

DMUL *Multiply Fixed Double (Lower)*

DMUU *Multiply Fixed Double (Upper)*

DDIV *Divide Fixed Double*

FADD *Add Floating Point*

FSUB *Subtract Floating Point*

FMUL *Multiply Floating Point*

FDIV *Divide Floating Point*

SIN *Sine*

COS *Cosine*

TAN *Tangent*

ASIN *Inverse Sine*

ACOS *Inverse Cosine*

ATAN *Inverse Tangent*

SQRT *Square Root*

LOG *Common Logarithm*

LN *Natural Logarithm*

EXP *Exponent (Euler)*

PWR *Exponent (X^Y)*