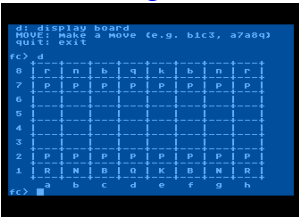


[Home](#) \* [Engines](#) \* **FirstChess**



FirstChess screen <sup>[2]</sup>

**FirstChess**, a very simple [open source chess program](#) with a [command line interface](#) written by [Pham Hong Nguyen](#) in [C](#) for didactic purpose, introduced in 2002 <sup>[1]</sup>. Since FirstChess lacks [en passant](#) and [castling](#), there is implicit invitation to improve it.

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## Description

### Board

The [8x8 board](#) consists of two [arrays](#) for [piece type](#) and color.

```
#define PAWN 0x0
#define KNIGHT 0x1
#define BISHOP 0x2
```

```
#define    ROOK      0x3
#define    QUEEN     0x4
#define    KING      0x5
#define    EMPTY     0x6
#define    WHITE     0x0
#define    BLACK     0x1

int piece[64] = {
    ROOK,  KNIGHT,BISHOP,QUEEN,  KING,   BISHOP,KNIGHT,ROOK,
    PAWN,  PAWN,  PAWN,  PAWN,  PAWN,  PAWN,  PAWN,  PAWN,
    EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY,
    EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY,
    EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY,
    PAWN,  PAWN,  PAWN,  PAWN,  PAWN,  PAWN,  PAWN,  PAWN,
    ROOK,  KNIGHT,BISHOP,QUEEN,  KING,   BISHOP,KNIGHT,ROOK
};

int color[64] = {
    BLACK, BLACK, BLACK, BLACK, BLACK, BLACK, BLACK, BLACK,
    BLACK, BLACK, BLACK, BLACK, BLACK, BLACK, BLACK, BLACK,
    EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY,
    EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY,
    EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY,
    EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY, EMPTY,
    WHITE, WHITE, WHITE, WHITE, WHITE, WHITE, WHITE, WHITE,
    WHITE, WHITE, WHITE, WHITE, WHITE, WHITE, WHITE, WHITE
};
```

## Search

The [negamax](#) [alpha-beta](#) lacks any [move ordering](#) techniques:

```
static int Search(int alpha, int beta, int depth, MOVE * pBestMove)
{
    int i, value, havemove, movecnt;
    MOVE moveBuf[200], tmpMove;

    nodes++; /* visiting a node, count it */
    havemove = 0;
    pBestMove->type = MOVE_TYPE_NONE;
    movecnt = Gen(side, moveBuf);
    /* generate all moves for current position */
    /* loop through the moves */
    for (i = 0; i < movecnt; ++i) {
```

```
mm2 = moveBuf[i];
if (!MakeMove()) {
    TakeBack();
    continue;
}
havemove = 1;
if (depth - 1 > 0)
/* If depth is still, continue to search deeper */
    value = -Search(-beta, -alpha, depth - 1, &tmpMove);
else
/* If no depth left (leaf node), go to evaluate that position */
    value = Eval();
TakeBack();
if (value > alpha) {
    /* This move is so good and caused a cutoff */
    if (value >= beta)
        return beta;
    alpha = value;
    *pBestMove = moveBuf[i];
/* so far, current move is the best reaction
    * for current position */
}
}
if (!havemove) { /* If no legal moves, that is checkmate or
    * stalemate */
    if (IsInCheck(side))
        return -MATE + ply;
/* add ply to find the longest path to lose or shortest path to win */
    else
        return 0;
}
return alpha;
}
```

## Evaluation

FirstChess' [evaluation](#) considers [material](#) with following [point values](#):

```
#define  VALUE_PAWN      100
#define  VALUE_KNIGHT   300
#define  VALUE_BISHOP   300
#define  VALUE_ROOK     500
#define  VALUE_QUEEN    900
#define  VALUE_KING     10000
```

```
int Eval()
{
    int value_piece[6] = {
VALUE_PAWN, VALUE_KNIGHT, VALUE_BISHOP, VALUE_ROOK, VALUE_QUEEN, VALUE
_KING};
    int i, score = 0;
    for (i = 0; i < 64; i++) {
        if (color[i] == WHITE)
            score += value_piece[piece[i]];
        else if (color[i] == BLACK)
            score -= value_piece[piece[i]];
    }
    if (side == WHITE)
        return score;
    return -score;
}
```

## See also

- [Ax](#)

## Forum Posts

- [FirstChess - a crazy project!](#) by [Pham Hong Nguyen](#), [CCC](#), July 24, 2002
- [Beginner programmer Winboard and chess computing advice](#) by tr2, [Winboard Forum](#), June 09, 2009

## External Links

- [Index of /cc65](#) from [atarionline.pl](#) <sup>[3]</sup>

## References

1. [^](#) [FirstChess - a crazy project!](#) by [Pham Hong Nguyen](#), [CCC](#), July 24, 2002
2. [^](#) [firstchess.png](#) from [Index of /cc65](#)
3. [^](#) [oups](#), better replace "unsigned char" by "int"

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Oct 9, 2017

Mar 10, 2018

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