Project

Assembly Language Programs

Write a two-pass assembler for the 12 bit accumulator architecture having instructions as follows.

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| Opcode | Meaning | Assembly Opcode |
| 0000 | Clear accumulator | CLA |
| 0001 | Load into accumulator from address | LAC |
| 0010 | Store accumulator contents into address | SAC |
| 0011 | Add address contents to accumulator contents | ADD |
| 0100 | Subtract address contents from accumulator contents | SUB |
| 0101 | Branch to address if accumulator contains zero | BRZ |
| 0110 | Branch to address if accumulator contains negative value | BRN |
| 0111 | Branch to address if accumulator contains positive value | BRP |
| 1000 | Read from terminal and put in address | INP |
| 1001 | Display value in address on terminal | DSP |
| 1010 | Multiply accumulator and address contents | MUL |
| 1011 | Divide accumulator contents by address content. Quotient in R1 and remainder in R2 | DIV |
| 1100 | Stop execution | STP |

Team size: 2 from your group

Soft copy of code to be submitted for anti-plagiarism check

Grading: Documentation, error reporting, working assembler all carry equal weight.