

CS2022301-Exact-Boolean-Minimization

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Requirements

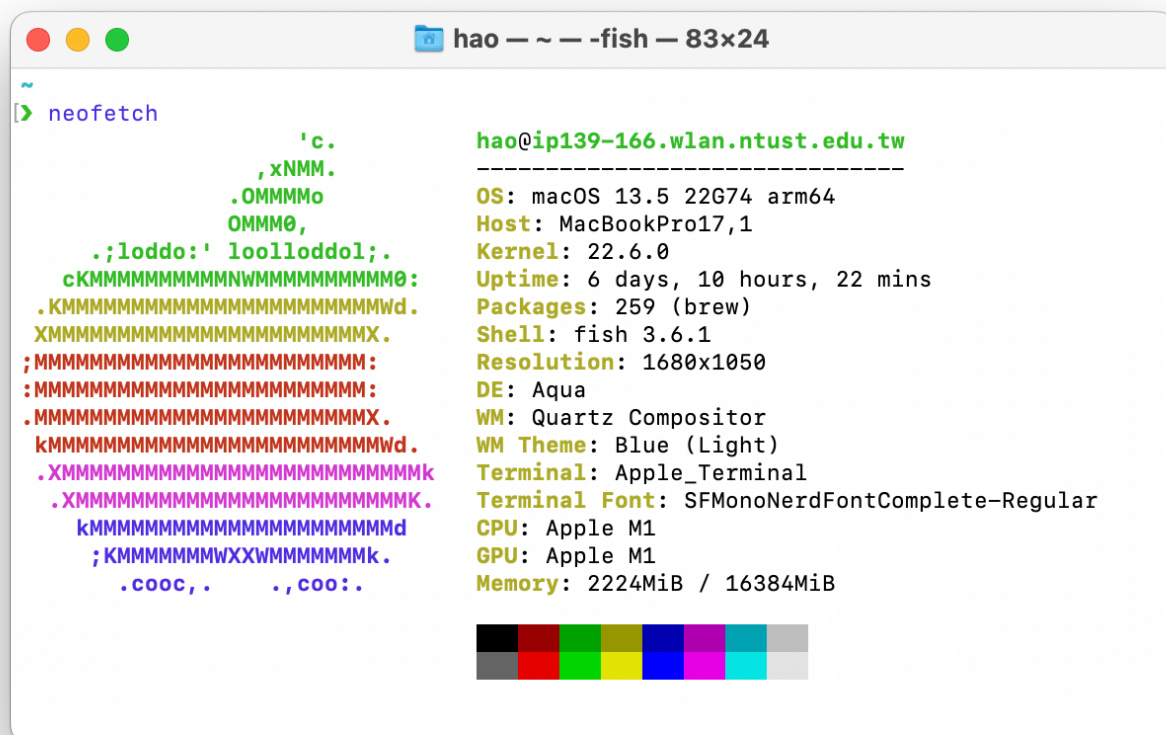
- GNU GCC/Clang with C++14 supported
- CMake >= 3.18

Visual C++ may be supported, but not tested

Build

```
mkdir build
cd build
cmake -DCMAKE_BUILD_TYPE=Release ..
cmake --build .
```

Test platform



macOS

```
Darwin ip139-166.wlan.ntust.edu.tw 22.6.0 Darwin Kernel Version 22.6.0: Wed Jul  5 22:22:52 PDT 2023; root:xnu-8796.141.3~6/RELEASE_ARM64_T8103 arm64
```

Apple Clang

```
Apple clang version 15.0.0 (clang-1500.0.40.1)
Target: arm64-apple-darwin22.6.0
Thread model: posix
InstalledDir:
/Applications/Xcode.app/Contents/Developer/Toolchains/XcodeDefault.xctoolchain/usr/bin
```

CMake

```
cmake version 3.26.4
```

Test Cases

Case 1

[./examples/set03/case1.pla](#)

Input PLA

```
.i 4
.o 1
.ilb a b c d
.ob f
.p 8
0000 -
001- 1
01-- 1
10-- 1
110- 1
111- 1
-000 1
1111 -
.e
```

Output PLA

```
.i 4
.o 1
.ilb a b c d
.ob f
.p 3
--1- 1
-1-- 1
1--- 1
.e
```

Best solutions

- $f = c + b + a$

Case 2

[./examples/set03/case2.pla](#)

Input PLA

```
.i 5
.o 1
.ilb a b c d e
.ob f
.p 5
-1101 1
01--1 1
-0011 1
11100 -
---11 1
.e
```

Output PLA

```
.i 5
.o 1
.ilb a b c d e
.ob f
.p 3
01--1 1
---11 1
1110- 1
.e
```

Best solutions

- $f = a'be + de + abcd'$
- $f = a'be + de + bce$

Case 3

Input PLA

```
.i 6
.o 1
.ilb a b c d e g
.ob f
.p 16
0000100 1
0001000 1
0--1011 1
0010101 1
0001101 -
0011-01 1
0011010 1
0011101 1
010-111 1
01011-1 1
0110101 1
0111001 -
01011-1 1
0110111 1
0111011 1
0111101 1
.e
```

Output PLA

```
.i 6
.o 1
.ilb a b c d e g
.ob f
.p 6
00--10 1
00-10- 1
0--101 1
0--110 1
010-11 1
01101- 1
.e
```

Best solutions

- $f = a'b'eg' + a'b'de' + a'de'g + a'deg' + a'bc'eg + a'bcd'e$
- $f = a'b'eg' + a'b'de' + a'de'g + a'ceg' + a'bd'eg + a'bc'de$
- $f = a'b'eg' + a'b'dg' + a'de'g + a'deg' + a'bc'eg + a'bcd'e$
- $f = a'b'eg' + a'b'dg' + a'de'g + a'ceg' + a'bd'eg + a'bc'de$