Oml MultiOberon/LLVM Quick-Start

Copyright © 2019, by Dmitry Dagaev

Version 24-May-2019

MultiOberon/LLVM compiler.

Oml is the instance of MultiOberon compiler with LLVM backend. Used prepared library with LLVM 5.0.

Contents:

1   Installation   Up
1.1. Preconditions.
> **Install LLVMT.dll from ~/Blwe to BlackBox.exe location**
> Oml uses LLVM 5.0 Services and LLVMT.dll.

1.2. Unpack all files via [Tools][Decode]:

1.3 Compile LLVM Services
 DevCompiler.CompileThis LlvmC LlvmForAArch64 LlvmForAMDGPU LlvmForARM LlvmForBPF
LlvmForHexagon LlvmForLanai LlvmForMips LlvmForMSP430 LlvmForNVPTX LlvmForPowerPC
LlvmForSparc LlvmForSystemZ LlvmForX86 LlvmForXCore LlvmNative LlvmRefs

1.4 Compile the following modules:
 DevCompiler.CompileThis OmcTarget OmcCRuntime OmcHooks OmcDialog OmcOPM OmcOPT OmcOPU
OmcOPB OmcOPS OmcOPP OmcDump OmcParams OmcOdcSource OmcTxtSource OmcRuntimeStd
OmcDialogStd OmcDialogConsole OmcCompiler OmcHostDialog OmcConsole OmlOPG OmlOPL OmlOPF
OmlOPC OmlOPV OmlBackEnd OmlCompiler OmlConsole

2   Compiling Examples   Up
2.1. Compiling examples for 32-bit
 OmlCompiler.CompileThis +HostConLog OmtestHelloWorld: OmtestFormats: OmtestDateTime:
OmtestMkTraps: OmtestHeap:
Expected result in ~/Omtest/Clwe/ directory: OmtestHelloWorld.ll OmtestHelloWorld.bc OmtestFormats.ll
OmtestFormats.bc OmtestDateTime.ll OmtestDateTime.bc OmtestMkTraps.ll OmtestMkTraps.bc
OmtestHeap.ll OmtestHeap.bc

2.2. Compiling examples for 64-bit
 OmlCompiler.CompileThis -bits 64 +HostConLog OmtestHelloWorld: OmtestFormats: OmtestDateTime:
OmtestMkTraps: OmtestHeap:
Expected result in ~/Omtest/Clwr/ directory: OmtestHelloWorld.ll OmtestHelloWorld.bc OmtestFormats.ll
OmtestFormats.bc OmtestDateTime.ll OmtestDateTime.bc OmtestMkTraps.ll OmtestMkTraps.bc
OmtestHeap.ll OmtestHeap.bc

3   Running Examples   Up
3.1 Running in 32-bit OmlSh (~/Blwe/OmlSh.exe run) modules from Omtest/Clwe:
```
Blwe\OmlSh ru OmtestHelloWorld
```

```
Blwe\OmlSh ru OmtestFormats
Blwe\OmlSh ru OmtestDateTime
Blwe\OmlSh ru OmtestMkTraps -trap a
      causes program error,possible values: a, h, p, z
Blwe\OmlSh ru OmtestHeap
```

3.2 Running in 64-bit OmlSh (~/Blwr/OmlSh.exe run) modules from Omtest/Clwr:

```
Blwr\OmlSh ru OmtestHelloWorld
Blwr\OmlSh ru OmtestFormats
Blwr\OmlSh ru OmtestDateTime
Blwr\OmlSh ru OmtestMkTraps -trap a
      causes program error,possible values: a, h, p, z
Blwr\OmlSh ru OmtestHeap
      intensive heap and GC usage
```

4   Console Compiling Examples   Up

OmlSh.exe compile provides a console compiler for text files *.mod. Option -odc for odc-format source is not supported yet.

4.1. Compiling examples in 32-bit OmlSh (~/Blwe/OmlSh.exe compile) modules from Omtest/Clwe

```
Blwe\OmlSh compile OmtestHelloWorld OmtestFormats OmtestDateTime OmtestMkTraps
OmtestHeap
```

4.2. Compiling examples in 64-bit OmlSh (~/Blwr/OmlSh.exe compile) modules from Omtest/Clwr

```
Blwe\OmlSh compile OmtestHelloWorld OmtestFormats OmtestDateTime OmtestMkTraps
OmtestHeap
```

5   Console Compiling and Running Examples Up

OmlSh execute provides both compilation and run from the shell. In execute mode the message "oml:compiling ..." is not printed.

```
Blwe\OmlSh co OmtestHelloWorld
+
Blwe\OmlSh ru OmtestHelloWorld
=
Blwe\OmlSh ex OmtestHelloWorld
```

5.1 Executing in 32-bit OmlSh (~/Blwe/OmlSh.exe execute) modules from Omtest/Clwe:

```
Blwe\OmlSh ex OmtestHelloWorld
Blwe\OmlSh ex OmtestFormats
Blwe\OmlSh ex OmtestDateTime
Blwe\OmlSh ex OmtestMkTraps -trap a
      causes program error,possible values: a, h, p, z
Blwe\OmlSh ex OmtestHeap
      intensive heap and GC usage
```

5.2 Running in 64-bit OmlSh (~/Blwr/OmlSh.exe execute) modules from Omtest/Clwr:

```
Blwr\OmlSh ex OmtestHelloWorld
Blwr\OmlSh ex OmtestFormats
Blwr\OmlSh ex OmtestDateTime
Blwr\OmlSh ex OmtestMkTraps -trap a
      causes program error,possible values: a, h, p, z
Blwr\OmlSh ex OmtestHeap
      intensive heap and GC usage
```

6   Making binary executives from LLVM Up

6.1 Preconditions

llc.exe from LLVM 5.0 is needed. It's provided in ~/Blwe directory. llc converts .bc files into object .o files. Linker is needed also. I use clang as linker.

6.2 Making 32-bit binary examples from LLVM: call lwe_tomake.bat. Editing tomake.bat files is expected. No huge system like "cmake" is provided.

```
lwe_tomake.bat
```

6.3 Making 64-bit binary examples from LLVM: call lwr_tomake.bat. Editing tomake.bat files is expected. No huge system like "cmake" is provided.

```
lwr_tomake.bat
```

7   Self-Compiling Shell   Up

3.1 Self-Compile 32-bit LLVM Services.
 OmlCompiler.CompileThis LlvmC LlvmForAArch64 LlvmForAMDGPU LlvmForARM LlvmForBPF LlvmForHexagon LlvmForLanai LlvmForMips LlvmForMSP430 LlvmForNVPTX LlvmForPowerPC LlvmForSparc LlvmForSystemZ LlvmForX86 LlvmForXCore LlvmNative LlvmRefs

3.2 Self-Compile 32-bit console Oberon Shell.
 OmlCompiler.CompileThis -System Syslwe -Host Hostlwe -options lb -directories Llwe LlvmNative OmcTarget OmcCRuntime OmcDialog OmcHooks OmcTxtSource OmcDialogConsole OmcRuntimeStd OmcOPM OmcOPT OmcOPB OmcOPU OmcOPS OmcOPP OmcParams OmcConsole OmcDump OmcShell OmlOPG OmlOPL OmlOPF OmlOPC OmlOPV OmlBackEnd OmlLoader OmlSh:

3.3 Self-Compile 64-bit LLVM Services.
 OmlCompiler.CompileThis -bits 64 LlvmC LlvmForAArch64 LlvmForAMDGPU LlvmForARM LlvmForBPF LlvmForHexagon LlvmForLanai LlvmForMips LlvmForMSP430 LlvmForNVPTX LlvmForPowerPC LlvmForSparc LlvmForSystemZ LlvmForX86 LlvmForXCore LlvmNative LlvmRefs

3.4 Self-Compile 64-bit console Oberon Shell.
 OmlCompiler.CompileThis -System Syslwr -Host Hostlwr -options lb -directories Llwr -bits 64 LlvmNative OmcTarget OmcCRuntime OmcDialog OmcHooks OmcTxtSource OmcDialogConsole OmcRuntimeStd OmcOPM OmcOPT OmcOPB OmcOPU OmcOPS OmcOPP OmcParams OmcConsole OmcDump OmcShell OmlOPG OmlOPL OmlOPF OmlOPC OmlOPV OmlBackEnd OmlLoader OmlSh:

8   Unloading Oml Compiler Up

DevDebug.UnloadThis OmlCompiler OmlBackEnd OmlOPV OmlOPC OmlOPF OmlOPL OmlOPG OmcCompiler OmcDialogStd OmcRuntimeStd OmcOdcSource OmcParams OmcDump OmcOPP OmcOPS OmcOPU OmcOPB OmcOPT OmcOPM OmcDialog OmcHooks OmcCRuntime OmcTarget

9   Change log   Up

may 2019 original MultiOberon pre-version 0.8 released

Use it and enjoy! - Ўъsalos y disfrъtalos! - Bonne utilisation - Приятного использования - Powodzenia - Viel SpaЯ

Dmitry V. Dagaev
dvdagaev@yahoo.com