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***ebe, designed by the author specifically to meet the needs of assembly language programmers. Ebe is a C++ program which uses the Qt library to implement a GUI environment consisting of a***

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***source window, a data window, a register window, a floating point register window, a backtrace window, a console window, a terminal window, a project window and a pair of***

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***teaching tools called the  
"Toy Box" and the "Bit  
Bucket".The source window  
includes a full-featured text  
editor with convenient  
controls for assembling,  
linking and debugging a***

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***program. The project facility allows a program to be built from C source code files and assembly source files. Assembly is performed automatically using the yasm assembler and linking***

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***is performed with ld or gcc.  
Debugging operates by  
transparently sending  
commands into the gdb  
debugger while  
automatically displaying  
registers and variables after***

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***each debugging step. The Toy Box allows the use to enter variable definitions and expressions in either C++ or Fortran and it builds a program to evaluate the expressions. Then the user***

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***can inspect the format of each expression. The Bit Bucket allows the user to explore how the computer stores and manipulates integers and floating point numbers. Additional***

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processors is helpful but not  
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***The purpose of this text is to***

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***provide a reference for  
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language and systems  
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Specifically, this text  
addresses the x86-64  
instruction set for the***

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***popular x86-64 class of  
processors using the Ubuntu  
64-bit Operating System  
(OS). While the provided  
code and various examples  
should work under any Linux-  
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***only been tested under  
Ubuntu 14.04 LTS (64-bit).  
The x86-64 is a Complex  
Instruction Set Computing  
(CISC) CPU design. This  
refers to the internal  
processor design philosophy.***

***CISC processors typically include a wide variety of instructions (sometimes overlapping), varying instructions sizes, and a wide range of addressing modes. The term was***

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***retroactively coined in  
contrast to Reduced  
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(RISC3).***

***This hands-on tutorial is a  
broad examination of how a  
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x86-64 assembly language or  
design hardware yourself,  
but knowing how the  
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works will give you greater  
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***assembly language level. The goal isn't to make you an assembly programmer, but to help you comprehend what happens behind the scenes between running your program and seeing***

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