

Amd and 64 bit microprocessor

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It seems that the migration to 64-bit system for home and office use is unstoppable. AMD, Intel and Microsoft are leading the said technology migration. 64-bit computing is dominating faster in the world of desktop PC's, it is embraced by the computing industry from all around the world. News about some new processors, operating systems and applications that takes advantages of this feature is coming everyday. During the 80's the computer systems migrated from 8-bit to 16-bit and later on, in the 90's, the system advanced further once again, to 32-bit.

32-bit computing becomes the common place for all the end-users, but that is two decades old and surprisingly computer technology keeps on advancing as the need to have more powerful desktop need is running up the scale. 32-bit refers the number of bits that can be processed or transmitted in parallel. Bits are the smallest unit of information on a machine that a microprocessor can process. The term indicates the width of the registers in union with the microprocessor that is designed in a 32-bit platform.

However, we can conclude that a 64-bit processor has a register that can store 64-bit numbers. Therefore, a 64-bit architecture is capable of processing data two times the amount of data a Central Processing Unit (CPU) can process per clock cycle. A computer user can easily say or think that 64-bit processors can double the speed of a 32-bit processor. The truth is, it is not all about processing speed, but it is all about memory management. 32-bit processor can use up to 4GB of Random Access Memory (RAM) with the help of using a capable motherboard.

This 4GB Random Access Memory (RAM) is split between the operating system and the applications, 2GB for operating system and 2GB for application. In this manner of thinking, the entire user will see and think that a 64-bit processor is capable of using 8GB of RAM on their 64-bit computers. That is why numerous organizations and companies that access massive amounts of data have already made the evolution to 64-bit servers, since this server can support superior number of larger files.

They can also efficiently load huge enterprise database into memory that results in faster data retrieval and faster searches. The majority of 64-bit Central Processing Unit (CPU) remuneration will be ignored or will not be noticed without the key mechanism of 64-bit operating system software, and device drivers that can take benefit of 64-bit processor features. In 2005 to present, the puzzle has already been solved.

We have a 64-bit operating system and some applications that support the technology and that makes as ready for the big migration. But then, as the end user thinks that migrating to a 64-bit computing will make their browser move faster, Word documents will be running faster or even presentation software will look much impressive, everyone will be dissatisfied. On the other hand, a more demanding application such as gaming, video editing or encoding and the whole thing that requires more memory will surely witness the benefits.

Even if at this point of time we already have the operating systems, applications that support the 64-bit platform, migrating from 32-bit to 64-bit is still a problem, due to the fact that Device Drivers for x64 operating are not yet fully available. Even the software giant Microsoft has requested those

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kinds of drivers. I. Brief background on the company you have chosen
Datronic is a software development company focused on two upright markets; • Windows device driver development and driver developers training based in Portugal

- Public Library book loan application software system based in Germany In 1972, Otto Rudinger founded Datronic in Ausberg/Germany. The main area of the Business for the first 20 years is Microfilm and high precision barcode master film production. In 2001 Marcel Rudinger the son of the founder of the said company founded device driver development department located in Madeira Island in Portugal and took over 49 % of Datronic. Marcel Rudinger as a student of computersciencefirst developed his first MS DOS device driver and a low level system software that is intended to run under 8086 computer.

Furthermore he continuously developed drivers and low-level systems software, design and project management for many well-known companies worldwide. The company also conducts public and onsite training courses which focuses on device driver development for windows Marcel Rudinger as the trainer. The company has been in this business since the middle of 1990's. 2006 is the year where DATRONICSOFT was founded and Marcel Rudinger took over 100% of the Datronic.

DatronicSoft supply offshore development, and test capacities for Windows device driver development, and at the same time develops Datronic's public library book loan system as well as for some external companies. Discussion of Current Business Issues The companies training and seminars supply the basic knowledge for developing or writing a complete new drivers and even <https://assignbuster.com/amd-and-64-bit-microporcessor/>

modification of existing device drivers. The title of the training courses is WDM Device Driver Development for Windows XP, W2K3M VISTA and Longhorn server course 1(basics). It is a workshop with hands on labs and practical samples.

It provides thorough introduction to low level and hardware related software development on the Microsoft windows platform. Mostly experienced application programmers, system software and driver developers are the company's clients or customers. With DatronicSoft training courses, students expand a thorough knowledge and learn more about the device driver architecture of the Microsoft Windows operating system and their kernel mode components. On top of the course students learn more on backgrounds and concepts of device driver development using the Driver Development Kit (DDK) and lots of practical tips and tricks.

C or C++ is the major programming language for device driver development. Visual Studio is used as a tool for the development environment and as a compiler of the codes. The main issue whether the company is doing the development side or conducting offshore or in house training with due respect to adopt 64-bit computing, is the program possible errors occurring while porting C++ code from 32-bit platforms on 64-bit ones. As discussed earlier migrating from 32-bit computer system to 64-bit systems is inevitable and the need to develop drivers that will support the new platform is truly a necessity.

Programmers should understand appropriately that the new set of errors that materialized while coding the 64-bit programs is not just some new faulty constructions among thousand of other codes. These are unavoidable

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difficulties, which the developers of any developing program will face. We are aware that 64-bit software and drivers is the next step of the information technologies development. But in actuality, only few programmers have faced the nuances of this bubble and developing 64-bit programs in particular. The analysis of the errors occurring while porting 32-bit programs on 64-bit system is a difficult task.

Writing a not very quality code written without taking into account peculiarities of other architectures, might demand a lot of time and efforts. Thus causing delays on the development side, and may cause inaccurate instructions and solutions in the trainings conducted by the company. These issues should not be ignored for it will cause a huge amount of money in the company. We all know any project delays can cause disaster to any company and most probably it may cause the company to fail its objectives that will lead to the company's downfall.

Furthermore, dissatisfied students in terms of the content of the materials will surely arise. Since the student of the company are mostly programmers from different programming firms, possibility of loosing clients for driver development is very high, because the content of the lecture doesn't have the solutions for the problems stated below. Most common and possible problems that need to be observed thoroughly which the developer of 64-bit programs can face are:

- Common errors of programming which occur on 64-bit systems
- Reasons for appearing of these errors and the corresponding examples
- Methods of correcting the listed errors

- Review of methods and means of searching errors in 64-bit programs

Recommendations for the Executive Committee With the problems sited in <https://assignbuster.com/amd-and-64-bit-microporcessor/>

the study, the need to provide possible solutions will be provided. Program errors occurring while porting C++ code from 32-bit platforms on 64-bit ones are observed. Examples of the incorrect code and the ways to correct it are given. Methods and means of the code analysis, which allow diagnosing the errors discussed, are listed. The need to include the solutions to the training courses should be considered and applied in the device driver development side.

The following codes and analysis has already been tried and should be applied in both upright market of the company. Off warnings In all books devoted to the development of the quality code it is recommended to set a warning level of warnings shown by the compiler on as high level as possible. But there are situations in practice when for some project parts there is a lower diagnosis level set or it is even set off. Usually it is very old code that is supported but not modified. Programmers who work over the project are used to that this code works and don't take its quality into consideration.

Here it is a danger to miss serious warnings by the compiler while porting programs on the new 64-bit system. While porting an application you should obligatory set on warnings for the whole project that help to check the compatibility of the code and analyze them thoroughly. It can help to save a lot of time while debugging the project on the new architecture. If we won't do this the simplest and stupidest errors will occur in all their variety. Here it is a simple example of overflow which occurs in a 64-bit program if we ignore warnings at all.