

**DATABASE FOR FACILITATING SOFTWARE
INSTALLATION AND TESTING FOR A
BUILD-TO-ORDER COMPUTER SYSTEM**

**CROSS-REFERENCE TO RELATED
APPLICATIONS**

This application relates to co-pending U.S. patent application Ser. No. 08/920,773, filed on now entitled Software Installation And Testing For A Build-To-Order Computer System and naming Richard D. Amberg, Roger W. Wong, and Michael A. Brundridge as inventors, the application being incorporated herein by reference in its entirety.

This application relates to co-pending U.S. patent application Ser. No. 08/919,959 attorney docket number M-5217 US, filed on even date herewith, entitled Software Installation And Testing For A Build-To-Order Computer System and naming Richard D. Amberg, Roger W. Wong, and Michael A. Brundridge as inventors, the application being incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present embodiment relates to computer system diagnostics and more particularly to a method for sequencing software installation and/or testing steps for a computer system.

2. Description of the Related Art

Personal computer systems in general and IBM compatible personal computer systems in particular have attained widespread use for providing computing power to many segments of society. A personal computer system can usually be defined as a desk-top, floor-standing, or portable micro-computer that includes a system unit having a system processor and associated volatile and non-volatile memory, a display monitor, a keyboard, one or more diskette drives, a fixed disk storage device and an optional printer.

It has been known to install software and to perform tests on computer systems before they are shipped to businesses or individual customers. The goal of software installation and testing is to efficiently produce a useful, reliable computer system which may be delivered to businesses and individuals free from errors and ready to run. In general, testing detects and analyzes errors that occur in both the hardware and software portions of the computer system. A partial list of computer system hardware tests might include diagnostics upon hardware components such as a processor, memory, a disk storage device, an audio device, a graphics device, a keyboard, a mouse, and a printer. Software installation often includes loading a desired package of software onto the computer system, preparing appropriate environment variables for the computer, and preparing appropriate initialization files for the loaded software. Software testing often includes making sure that a desired version of software has been installed onto the computer system and that appropriate drivers are present on the computer system.

It has been known in the industry to install software and to test computer systems during manufacture by performing a fixed procedure before they are shipped to customers. For instance, a diskette containing certain diagnostic tests for a certain type of computer system is created. The diskette includes lengthy, often-complicated batch files which direct the software installation and diagnostic processes. The diskette further contains all the executable files for performing tests on the computer system being purchased.

Each computer system being built is provided with a respective copy of this diskette. These diskettes accompany

the computer systems being built around a factory floor during the manufacturing process, tests being run on the respective computer system according to the order inherent in the batch file. If a modification needs to be made to the process, the batch file is correspondingly changed by adding to or removing portions from the batch code. That change to the batch file results in a corresponding change to testing parameters (including the sequence in which the tests are run) of each subsequent computer system being manufactured, for each computer system shares the same batch file diagnostic procedure.

While diagnostic arrangements of this kind have exhibited some degree of usefulness in increasing the reliability of computer systems prior to shipment, room for improvement remains. For instance, as testing continues to become more complicated and thorough, batch files and executable files of the diagnostic tests often exceed the storage capabilities of a diskette. Furthermore, it is often difficult or impossible to customize testing and software installation procedures for a single build-to-order computer system or for a certain family of computer systems without modifying the testing for other systems or families. Moreover, it is difficult or impossible to modify the order of software installation or testing for a single build-to-order computer system or for a certain family of computer systems without modifying the order for other systems and families. Finally, the often-complicated nature of current batch file structures sometimes makes it difficult for manufacturers to troubleshoot or maintain testing and software installation procedures quickly and efficiently. Correspondingly, it would be desirable to devise an improved method for installing software and testing computer systems before they are shipped to customers.

SUMMARY

An apparatus for installing software onto a computer system includes a step table and a component table. The step table contains a set of software installation steps shared among different components of substantially all computer systems being manufactured. The component table contains a set of substantially all possible components that are included within computer systems being manufactured. In one embodiment, the computer system corresponds to a family of computer systems and the apparatus further includes a family relation table, a family step relation table and a family component relation table. The family relation table identifies the relationship between a set of software installation steps and each family of computer system being manufactured. The family component relation table identifies the relationship between the family of computer systems and the set of components. The family step relation table identifies the relation between a component and a set of software installation steps appropriate for the corresponding component.

In another embodiment, the invention relates to an apparatus for providing a plurality of steps where a step is associated with a respective component descriptor and includes a respective sequence number. The component descriptor describes a respective component of a computer system. The apparatus includes a step table and a component table. The step table contains a set of software installation steps shared among different components of substantially all computer systems being manufactured. The component table contains a set of substantially all possible components that are included within computer systems being manufactured.

The described apparatus thus provides for effective software installation and computer testing which allows for