Abstract

Calculator is “an electronic/mechanical device for the performance of mathematical computations and implemented with physical hardware devices”, while a software calculator is a calculator that has been implemented as a software program. Similarly a number system is a set of rules & symbols used to represent a number. So, number system calculator is a software
calculator used to perform mathematical computations on number systems. Today everyone is familiar with decimal number system (using 0-9). However digital devices almost use binary number system (using 0 & 1). Binary and other famous number systems e.g. octal (using 0-7) and hexadecimal (using 0-9 & A-F) number systems are based on the same fundamental concept of decimal number system. The knowledge of number systems, their representation, limits, arithmetic, compliments and inter-conversion of numbers between prescribed number systems is essential for understanding of computers and successful programming for digital devices. Understanding all these number systems and related terms/concepts requires allot of time and a large number of techniques to expertise. To overcome this problem, we propose calculating software which will cover and perform all the prescribed calculations within a fraction of second. It will perform various operations like number validity, arithmetic’s, conversion from one to another system and the compliments of number in any required system. Four most common number systems taken under the consideration are binary, octal, decimal, and hexadecimal.

Reference

- BARRY B, BREY The Intel Microprocessors, Sixth edition, prentice hall of India private limited, New Delhi – 110 001, 2002
- Shahid Latif, Junaid Qayyum, Muhammad Lal, Faheem Khan “Complete description of well-known number systems using single table” International Journal of Engineering and Computer Science (IJECs-IJENS), Volume 11, Issue 03
- Ramesh S. Gaonkar Microprocessor Architecture, Programming, and Applications with the 8085/8080A Published by H.S. Poplai for Wiley Eastern Limited, New Delhi ISBN: 0 85226 297 3
- M. MORRIS MANO “Digital Logic and Computer Design” 2nd edition
- Behrouz A. Forouzan Data Communication And Networking 2nd edition Updated
- Albert Paul Malvino, Jernald A. Brown Digital Computer Electronics third edition,
GLENCOE Macmillan/ McGraw- Hill
- Shahid Latif, Junnaid Qayyum, Muhammad Lal, Faheem Khan "Novel Approach to the Learning of Various Number System" International Journal of Computer Application, USA, Volume 26, Number 07, July 2011

**Index Terms**

Computer Science

Digital Electronics

**Key words**

Calculating software

arithmetic

binary

octal

hexadecimal

inter conversion

compliments