DAYANANDA SAGAR COLLEGE OF ENGINEERING

Shavigemalleshwara Hills, Kumaraswamy Layout, Bengaluru-560111, Karnataka
(An Autonomous College affiliated to VTU Belgaum, accredited by NBA & NAAC)

Department of Electronics & Communication Engineering

VI SEM BE MINI-PROJECT (22EC66) REPORT
on

Implementation of Radix-4 Multiplier using Cadence Virtuoso

Submitted in partial fulfillment of the requirement for the degree of

Bachelor of Engineering
in
Electronics & Communications Engineering - ECE
by

USN : 1DS22EC054	**Chaitra Krishna Gouda**
USN : 1DS22EC120	**Manish S**
USN : 1DS22EC170	**Ram Prasad H**
USN : 1DS22EC236	**Tejaswi M N**

Under the guidance
of
Dr. Vimala P
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnanasangama, Macche, Santibastwada Road
Belagavi-590018, Karnataka
2024-25

Certificate

Certified that the mini-project work **(Course Code : 22EC66)** entitled "**Implementation of Radix 4 Multiplier using Cadence Virutoso**" carried out by **Chaitra G (1DS22EC236) , Manish S (1DS22EC120), Ram Prasad H (1DS22EC170), Tejaswi M N (1DS22EC236)** are bonafide students of the **Department of ECE** of **Dayananda Sagar College of Engineering, Bangalore, Karnataka, India** in partial fulfillment for the award of Bachelor of Engineering in Electronics & Communication Engineering of the Visvesvaraya Technological University, Belagavi, Karnataka for the **VI Semester course** during the academic year 2024-25. It is certified that all corrections / suggestions indicated for the mini-project work have been incorporated in the mini-report. This **VI semester mini-project report** has been approved as it satisfies the academic requirement in respect of mini-project work prescribed for the said degree.

Mini-Project Guide Sign : _____

Name : **Dr. Vimala P, Prof., ECE, DSCE**

Mini-Project Domain Coordinator Sign : _____

Name : **Dr. SANTHOSH KUMAR R, Asst. Prof., ECE, DSCE**

Mini-Project Convener & Chief Coordinator Sign : _____

Name : **Dr. Trupti Tagare, Asst. Prof., ECE, DSCE**

Dr. Shobha K R : _____

Prof. & HOD, ECE, DSCE

Dr. B.G. Prasad : _____

Principal, DSCE

Mini-Project Viva-Voce (CIE)

Name of the mini-project examiners (with date):

1 : Signature : _____

2 : Signature : _____

Declaration

Certified that the mini-project work entitled, "Implemenation of Radix 4 Multiplier using Cadence Virtuoso " with the course code **22EC66** (2 Credits, CIE 100 Marks) is a bonafide work that was carried out by ourselves in partial fulfillment for the award of degree of Bachelor of Engineering in Electronics & Communication Engg. of the Visvesvaraya Technological University, Belagavi, Karnataka during the academic year 2024-25 for the VI Semester Autonomous Course. We, the students of the VI sem mini-project group/batch no. 6MP54 do hereby declare that the entire mini-project has been done on our own. The results embedded in this mini-project report has not been submitted elsewhere for the award of any type of degree.

Student Name-1 : **Ms. Chaitra Krishna Gouda**
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Date : / 05 /2025

Place : Bengaluru

Acknowledgement

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Thank you all.

Chaitra Krishna Gouda

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Abstract

The Radix-4 multiplier is an efficient digital circuit designed to perform high-speed binary multiplication by reducing the number of partial products. Based on an improved version of Booth's algorithm, it processes two bits of the multiplier at a time, which minimizes the number of required addition steps. This results in faster computation and improved performance compared to traditional multipliers. The Radix-4 algorithm is well-suited for VLSI implementation due to its balance between speed and hardware complexity. It is widely used in digital signal processing and arithmetic units where speed and efficiency are critical in processing large binary numbers.

Table of Contents

List of Figures

Nomenclature and Acronyms

Abbreviations (Alphabetical Order) :

DSCE	Dayananda Sagar College of Engineering
ECE	Electronics & Communication Engineering
IEEE	Institute of Electrical & Electronics Engineers