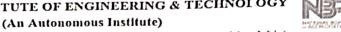
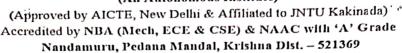


## SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY







Department of Electronics & Communication Engineering

## **Differentiation**

Name of the Faculty: K.Sai Sudheer

AY: 2023-24

Course: DSP

Course Code: C323

Class: III B.Tech. - II Sem.

Topic: Difference between Processors

The main difference between a Digital Signal Processor (DSP) and a general-purpose microprocessor lies in their architecture and optimization for specific tasks. DSPs are specialized for high-speed, repetitive mathematical operations, particularly in signal processing tasks like audio and video processing, while general-purpose microprocessors are designed for a wide range of computing tasks, including those that involve signal processing

## Differentiation by Content

Parameters	DSP processor	Microprocess or
Instruction cycle	Instructions are executed in single cycle of the clock	Multiple clocks cycles are required for execution of one in suction.
Instruction execution	Parallel execution is possible.	Execution of in struction is always sequential.
Memories	Separate data and program memory.	No such separ ite memories are present
On chip/Off chip memories	Program and Data memories are present on chip extendable off chip.	Normally on chip cache memory present, main memory is affichip.
Program flow control	Program sequencer and instruction register take care of program flow	Program count or take care of flow of execution.
Pipelining	Pipelining is implicate through instruction register and instruction cache.	Queuing is per orm explicate by one queue register to sup ort pipe ing.
Operand Fetch	Multiple operands can be fetched simultaneously.	Operands are latched sequentially.
Address and data bus multiplexing	Address and data bus are not multiplexed. They are separate on chip as well as off chip.	Address and d. ita bus are multiplexed.
Computational units	Three separate computational units: ALU, MAC and shifter.	Only one main unit ALU.
On chip address and data bus	Separate address and data bus for program and data memory.	Address and d ita bus are the two buses on the chip
Addressing modes	Direct and indirect addressing modes.	Direct, Indirect Register, Register indirect, Immediate au assing mi dé etc.
Application	Signal processing, audio processing, speech processing and array processing etc	General Purpo e applications.

Signature of the Faculty