

Accumulator pipeline

<div class="df_qntext">What is a pipe accumulator?

A simple form of accumulator is an enclosed volume, filled with air. A vertical section of pipe, often enlarged diameter, may be enough and fills itself with air, trapped as the pipework fills.

<div class="df_qntext">What is a hydraulic accumulator?

A hydraulic accumulator is a pressure storage reservoir in which an incompressible hydraulic fluid is held under pressure that is applied by an external source of mechanical energy.

<div class="df_qntext">What is a compressed gas accumulator?

It is a type of energy storage device. Compressed gas accumulators, also called hydro-pneumatic accumulators, are by far the most common type. The first accumulators for William Armstrong's hydraulic dock machinery were simple raised water towers. Water was pumped to a tank at the top of these towers by steam pumps.

<div class="df_qntext">What is the area occupied by 6 stages of pipelined Mac?

The area occupied by six stages of pipelined MAC is $1.05 \times 3.08 \text{ mm}^2$, the area occupied by fifth stage and sixth stages are same because as they are one above the other. Table 2 shows the performance summary of the whole design which specifies area, power and speed of the whole design at each stage. Table 2 Performance summary of Pipelined MAC

<div class="df_qntext">How are adder outputs routed to the accumulator?

The outputs are routed as the inputs to the adder using metal three, similarly the adder outputs are routed to the accumulator using metal three. The blocks are not flattened, only top level routing is used to connect the blocks. The area occupied by the MAC unit is $.52 \times .10 \text{ mm}^2$.

<div class="df_qntext">How does a cylinder accumulator work?

The cylinder is closed by a piston on which a series of weights are placed that exert a downward force on the piston and thereby pressurizes the fluid in the cylinder. In contrast to compressed gas and spring accumulators, this type delivers a nearly constant pressure, regardless of the volume of fluid in the cylinder, until it is empty.

Aiming at exorbitant pipeline pressure of braking accumulator of a large aircraft in a transfer-ground flight, by analyzing the cause of this malfunction, we find that the braking accumulator pipeline is ...

Z LAR: 2 cycles to update AR2 & ARP; need NOP after it ÿ A control hazard occurs when a branch instruction is decoded ÿ Processor "flushes" the pipeline, or ÿ Use delayed branch (expose pipeline) ÿ ...

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Designing a scalable and pipelined stall-free accumulator to fully utilize the I/O bandwidth and computing resources is critical to achieve a high performance goal. Designing a floating-point accumulator with ...

This paper presents a high-speed pipeline architecture for squarer-accumulator (SQAC). The proposed design integrates squarer into multiplier-accumulator (MAC), producing the ...

To trade-off between pipeline speed and area cost, we divided the final adder into two pipeline stages. In the first stage, the lower 32-bit addition is carried out.

For this reason, we focused on floating-point accumulators" architecture. The accumulation operation becomes critical when a floating-point adder with latency is used: in this case, ...

Abstract--The accumulation operation $A_{new} = A_{old} + X$ is required for many numerical methods. However, when using a floating-point adder with pipeline latency, the data hazard that exists ...

Abstract In this brief, a low power pipeline-parallel phase accumulator (PPA) with 32-bit frequency resolution and 10-bit phase resolution is proposed for direct digital frequency synthesizer (DDFS) ...

We propose JugglePAC, a fully pipelined accumulation circuit with a novel dynamic scheduling mechanism that efficiently handles high-speed, back-to-back variable-length datasets, overcoming ...

A bit-level pipelined 12 b*12 b two's complement multiplier with a 27 b accumulator has been designed and fabricated in 1.0 μ m p-well CMOS technology. A new quasi N-P domino logic structure has ...

We propose a fully pipelined accumulation circuit, namely JugglePAC, which efficiently handles high-speed, back-to-back variable-length datasets. JugglePAC demonstrates improvements over exist-ing ...

To complete the accumulator range, HYDAC provides a variety of useful accessory products. They guarantee correct installation and optimum functioning of HYDAC hydraulic accumulators. They ...

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