“Let Me Win” Crypto Pool

A New Crypto Mining Experience

Mining Difficulty, Target and VarDiff Technical Overview

1. Hash, Target and Difficulty

Bitcoin mining uses SHA-256 to compute 256-bit hashes. A valid block or share is one whose hash interpreted as a large integer is less than or equal to a target value. Difficulty is a normalized measure: difficulty 1 corresponds to a target equal to the historical MAX_TARGET. The formula is target = MAX_TARGET / difficulty. As difficulty increases, the target gets smaller, making valid hashes rarer.

2. Variable Difficulty (VarDiff)

Pools implement VarDiff to adjust the per-miner share difficulty up or down to keep the average time between shares close to a target time. Key parameters:

- minDiff: the minimum difficulty a miner can be assigned.
- maxDiff: the maximum difficulty allowed.
- targetTime: desired average seconds between accepted shares.
- retargetTime: evaluation window in seconds before retargeting.
- variancePercent: how much deviation is tolerated before a retarget.

VarDiff starts inside the pool at the configured diff value and moves up or down within minDiff and maxDiff to maintain the targetTime per share.

3. Common Rejection Reasons

- low_difficulty: the submitted share did not meet the assigned difficulty.
- duplicate: the same nonce was already submitted.
- job_not_found: the job ID was no longer valid (new block notified).

4. Bitaxe Performance Table

Mode	Typical Frequency	Power	Expected AxeOS Hashrate	Pool hashrate	Notes
Default (safe)	~350–400 MHz	8–10 W	8–20 GH/s	6-16 GH/S	Stable, cool
Performance	~450–500 MHz	12–15 W	18–35 GH/s	13-28 GH/s	Good compromise
Moderate OC	~525 MHz	15–18 W	30–55 GH/s	21-45 GH/S	Cooling OK
Heavy OC ⚠	~575–600+ MHz	18–25 W+	45–70+ GH/s	30-50+ GH/s	Requires excellent cooling

5. Tuning Tips

- Adjust overclocking to avoid excessive low-difficulty rejections.
- Ensure good cooling to maintain stability at higher frequencies.
- Monitor efficiency = valid / (valid + invalid).