

Patterns for MPI

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 **Hitachi Global Storage Technologies**

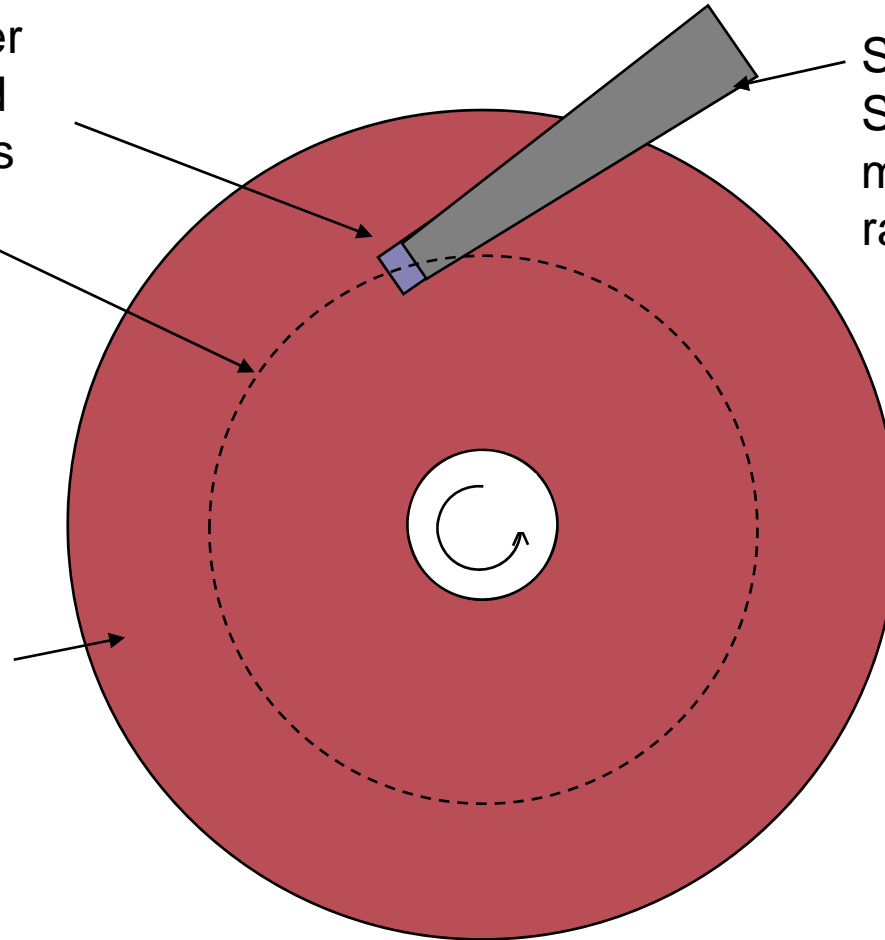
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HITACHI
Inspire the Next

Air bearing slider
flies on disk and
reads and writes
data on this
circumferential
track

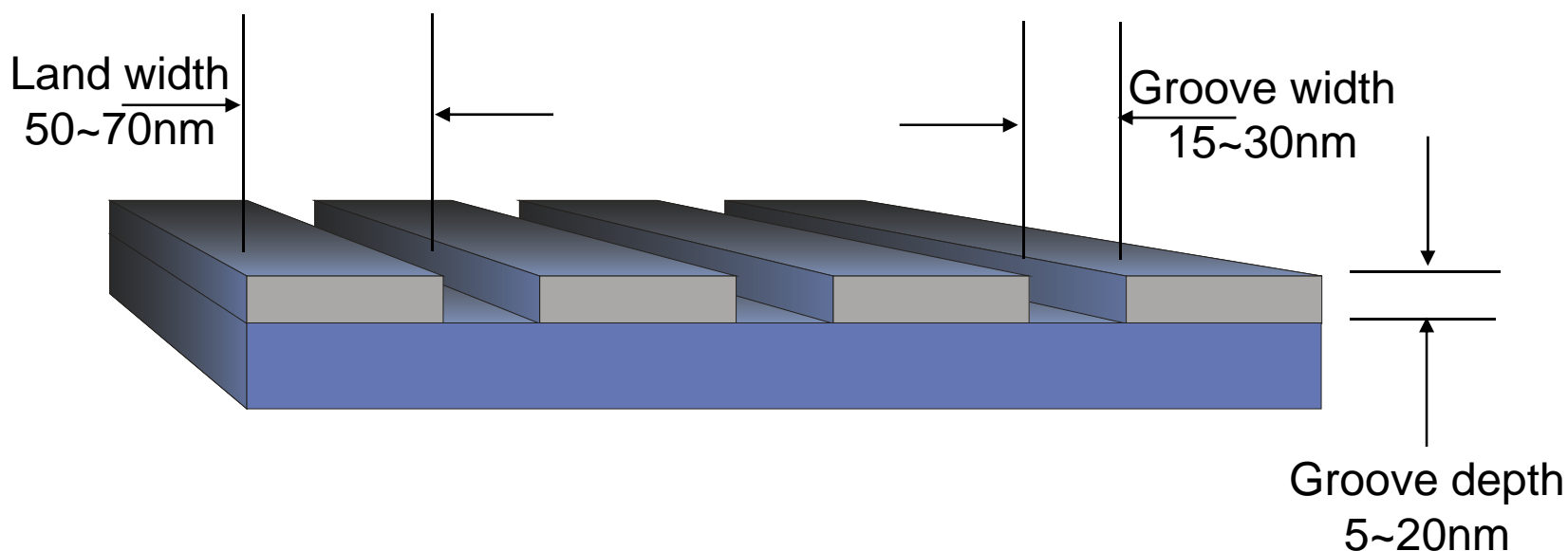
Suspension holds slider
Suspension pivots to
move slider to various
radial positions on disk

Rotating Disk



- Disk has conventionally been flat.
- In the future, the disk will contain grooves (for case of Discrete Track Media) or data islands (for case of Bit Patterned Media)
- The grooves (DTM) or islands (BPM) will be arranged along a circumferential path on the disk surface

Schematic Cross-section of geometric grooves cut in disk to form DTM tracks

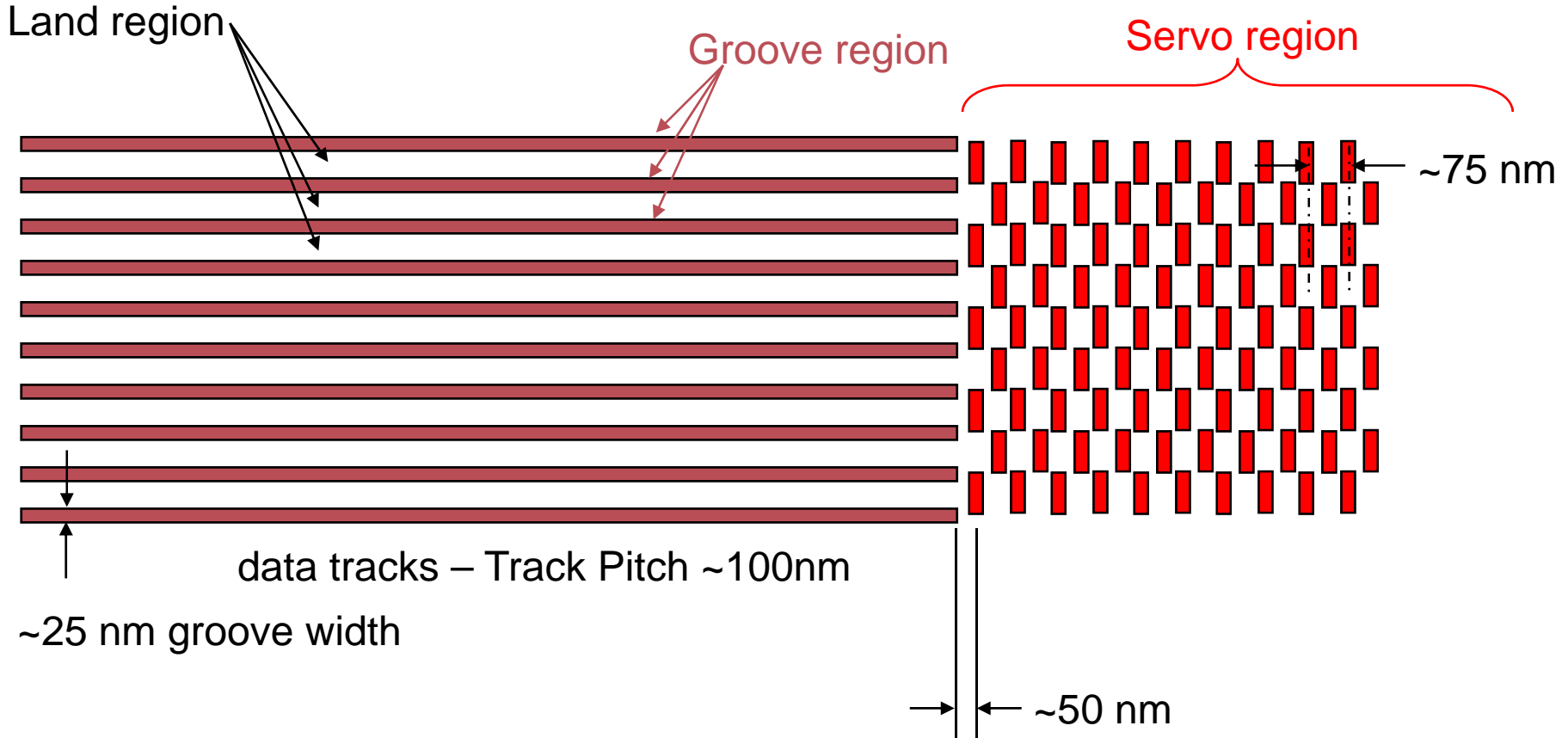


- The air-bearing flies above, but close to the top of the land region
- The air bearing travels parallel to the land and groove for normal reading and writing
- The air bearing will move sideways (“seek” over many mm distance) to reach different lands

Discrete Track Media (DTM).

Contains grooves separating recordable region and servo features to allow for tracking

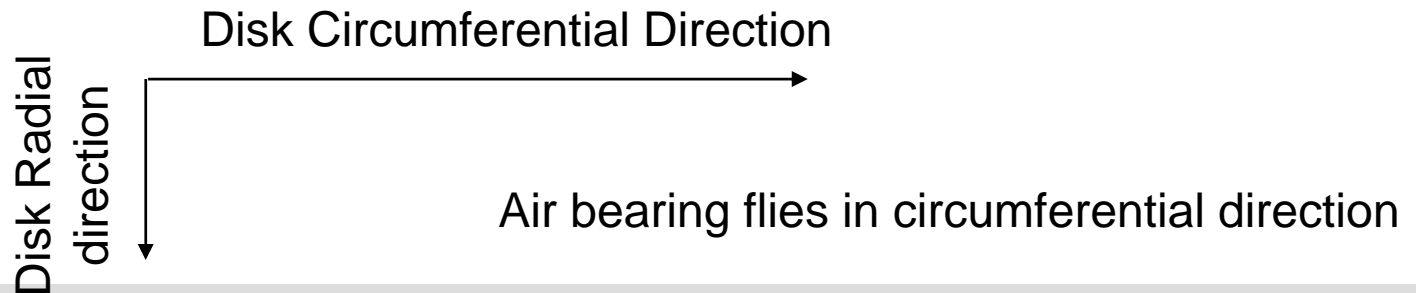
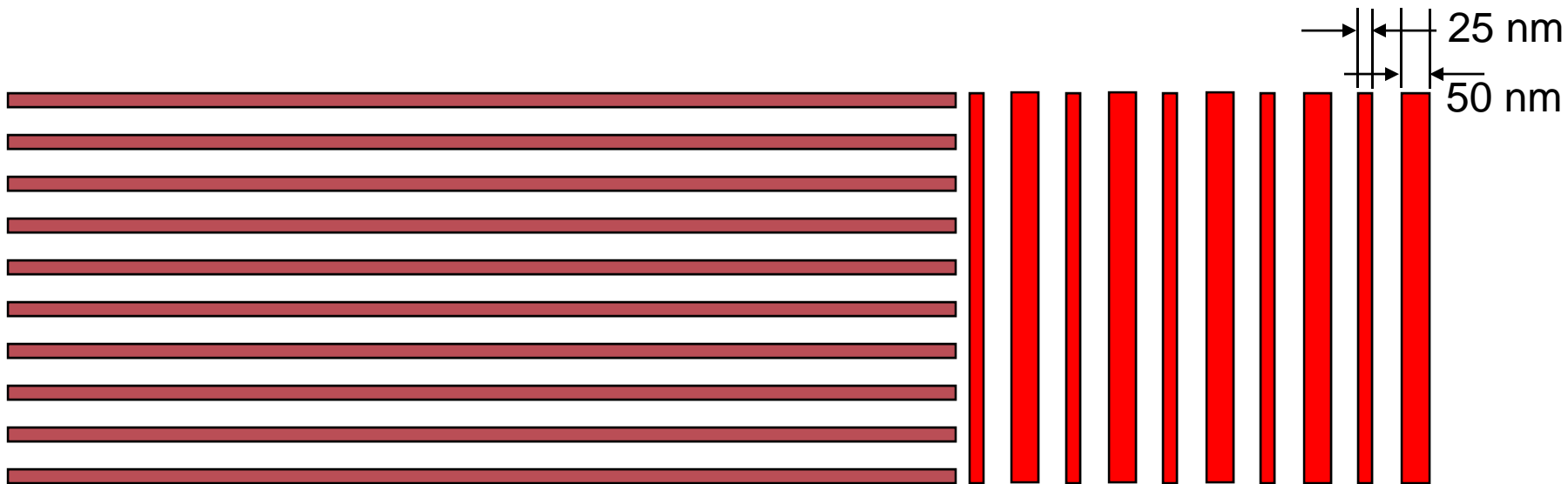
CASE A: Groove Pattern with Servo PES



Data is recorded in the land region (between the grooves)

Dimensions are for illustration only. Can be adjusted smaller and larger

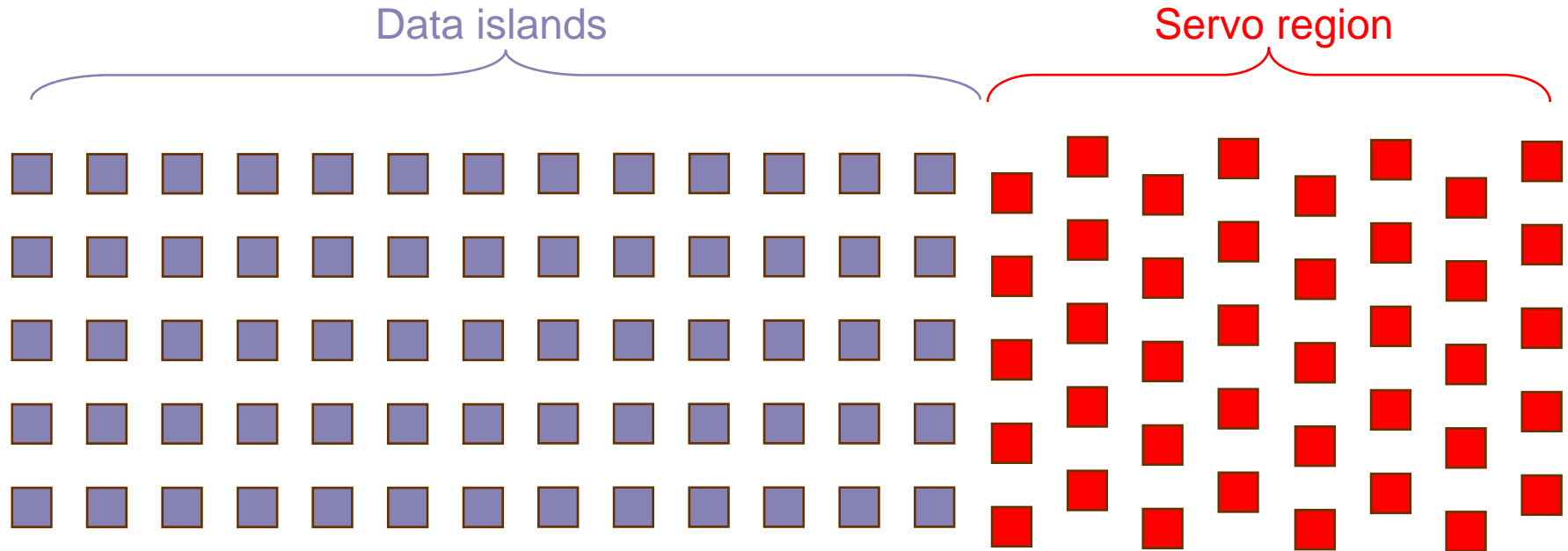
Case B: Servo are with varying groove width (example of 25 nm, 50 nm)



CASE C: Mixture of parallel and perpendicular features in servo region



CASE D patterned islands with Servo PES

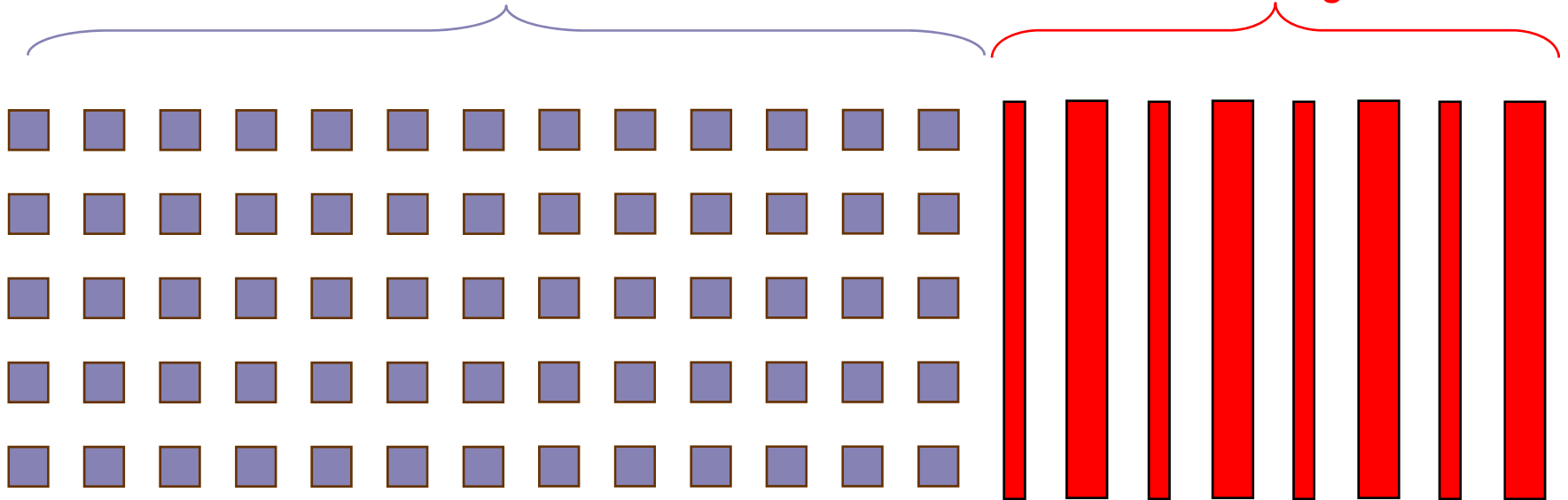


Typical island size and spacing's are in range of 10 ~ 25nm
(island size will typically larger than island spacing)

CASE E: patterned islands with servo features

Data islands

Servo region



CASE E: patterned islands with servo features

Data islands

Servo region

