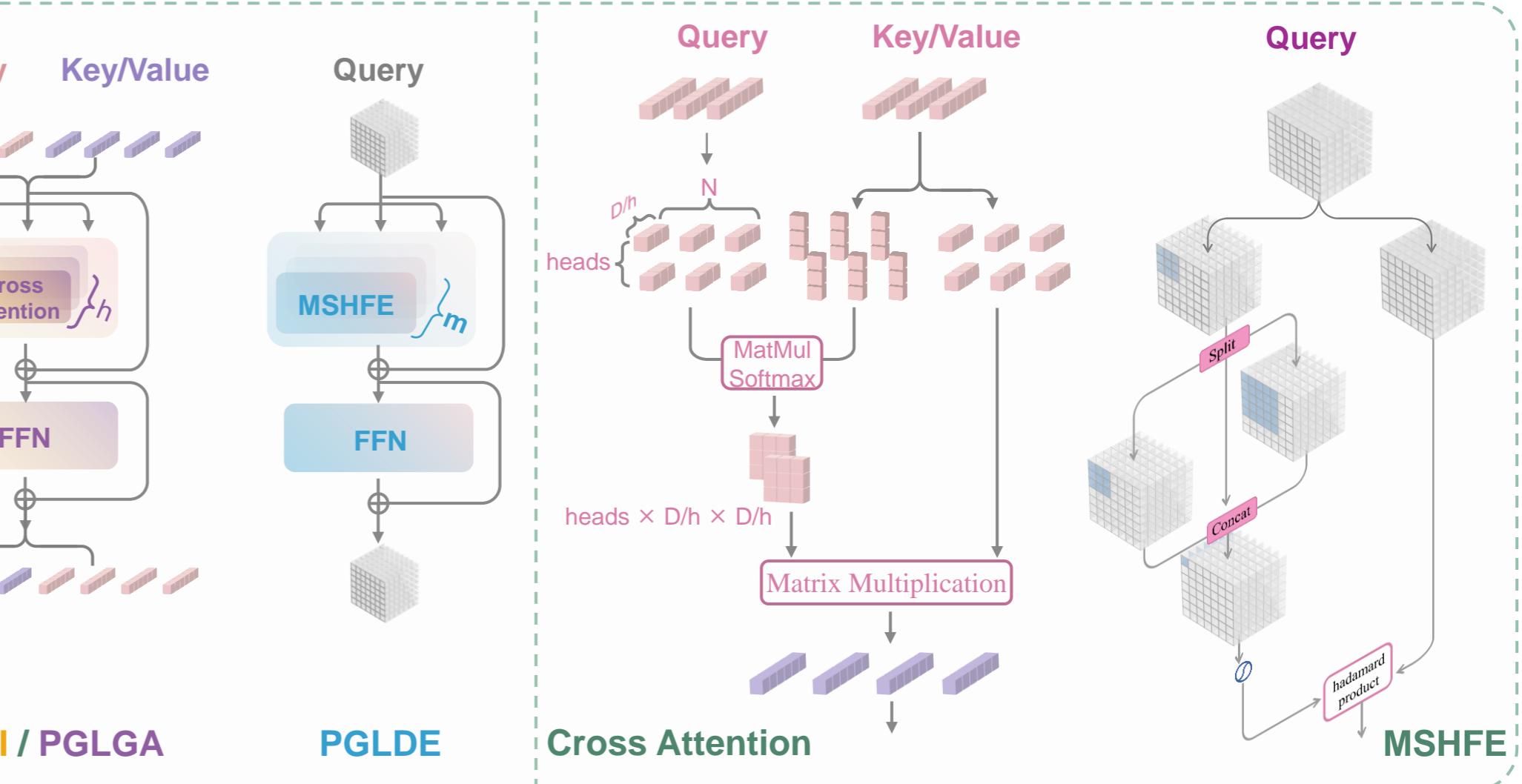**A. Overall structure (Top) and GPBG-unit (bottom)**

**B. Detailed structure of the GCBPI / PGLGA / PGLDE in the GPBG-unit**

GPB Prior

Rain Image

Rain-free Image

Projection

GPBG-unit

Concat Fusion

Prior feature

Image feature

Prior feature flow

Image feature flow

Upsample Downsample

Query

Key/Value

Value/Key

GCBPI

PGLGA

PGLDE

Prior feature

Query

Value/Key

Query

Key/Value

Query

Cross Attention

MSHFE

FFN

GCBPI / PGLGA

PGLDE

Cross Attention

MSHFE

MatMul Softmax

heads × D/h × D/h

Matrix Multiplication

Split

Concat

hadamard product