A   Image Generation with SNGAN

We have demonstrated the effectiveness of GS in compressing image-to-image GANs (*e.g.*, CycleGAN [67], StyleGAN [50]) in the main text. Here we show GS is also generally applicable to noise-to-image GANs (*e.g.*, SNGAN [44]). SNGAN with the ResNet backbone is one of the most popular noise-to-image GANs, with state-of-the-art performance on a few datasets such as CIFAR10 [33]. The generator in SNGAN has 7 convolution layers with 1.57 GFLOPs, with 32×32 image outputs. We evaluate SNGAN generator compression on the CIFAR-10 dataset. Inception Score (IS) [49] is used to measure image generation and style transfer quality. We use latency (FLOPs) and model size to evaluate the network efficiency. Quantative and visualization results are shown in Table 3 and Figure 6 respectively. GS is able to compress SNGAN by up to $8\times$ (in terms of model size), with minimum drop in both visual quality and the quantitative IS value of generated images.

Table 3: SNGAN compression results.

Method	MFLOPs	Model Size (MB)	IS
Original	1602.75	16.28	8.27
GS-32	1108.78	12.88	8.01
	509.39	8.32	7.65
GS-8	1115.11	3.24	8.14
	510.33	2.01	7.62

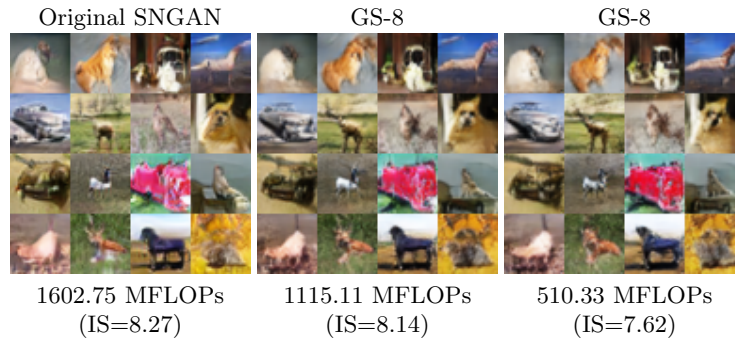| Original SNGAN	GS-8	GS-8
1602.75 MFLOPs (IS=8.27)	1115.11 MFLOPs (IS=8.14)	510.33 MFLOPs (IS=7.62)

Fig. 6: CIFAR-10 images generation by SNGAN (original and compressed). Leftmost column: images generated by original SNGAN. The rest columns: images generated by GS-8 compressed SNGAN, with different compression ratios. Images are randomly selected instead of cherry-picked.