



MIXED PRECISION TRAINING FOR SEMANTIC SEGMENTATION

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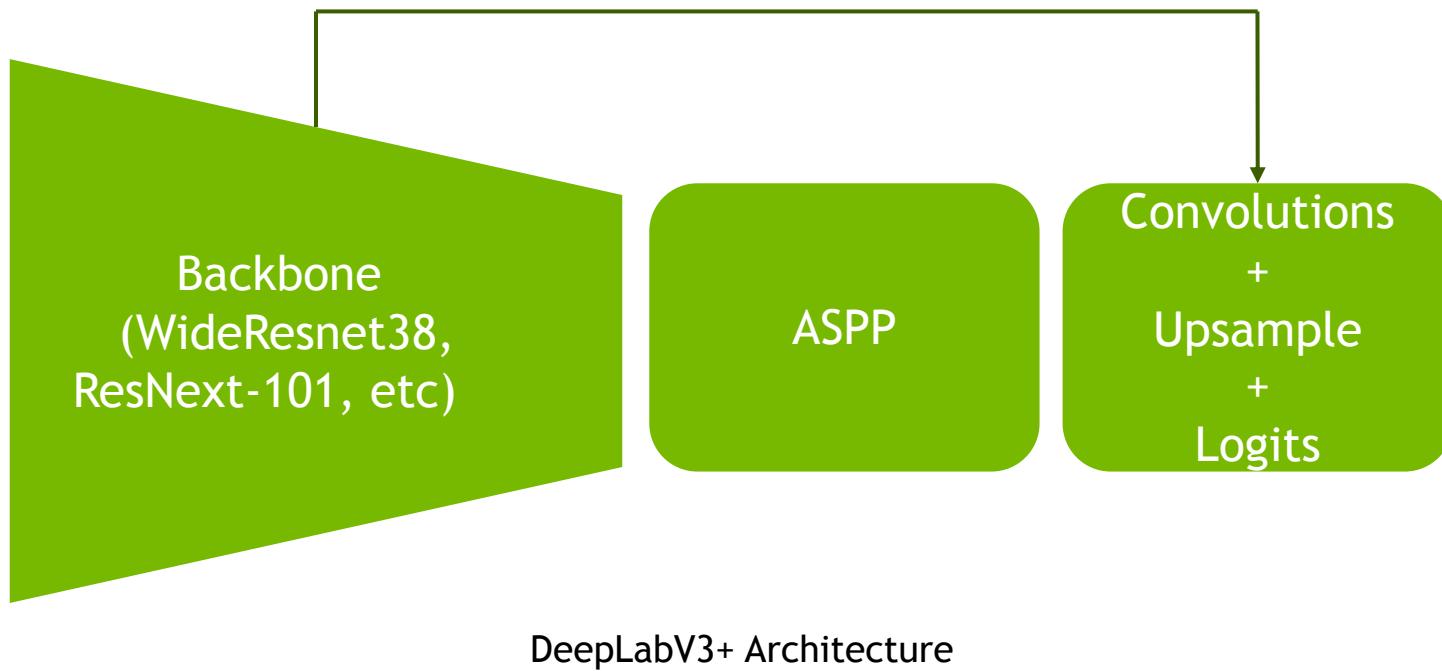
SEMANTIC SEGMENTATION

Assign a class to every pixel in an image



MODEL

Encoder Decoder Architecture



CHANGES REQUIRED

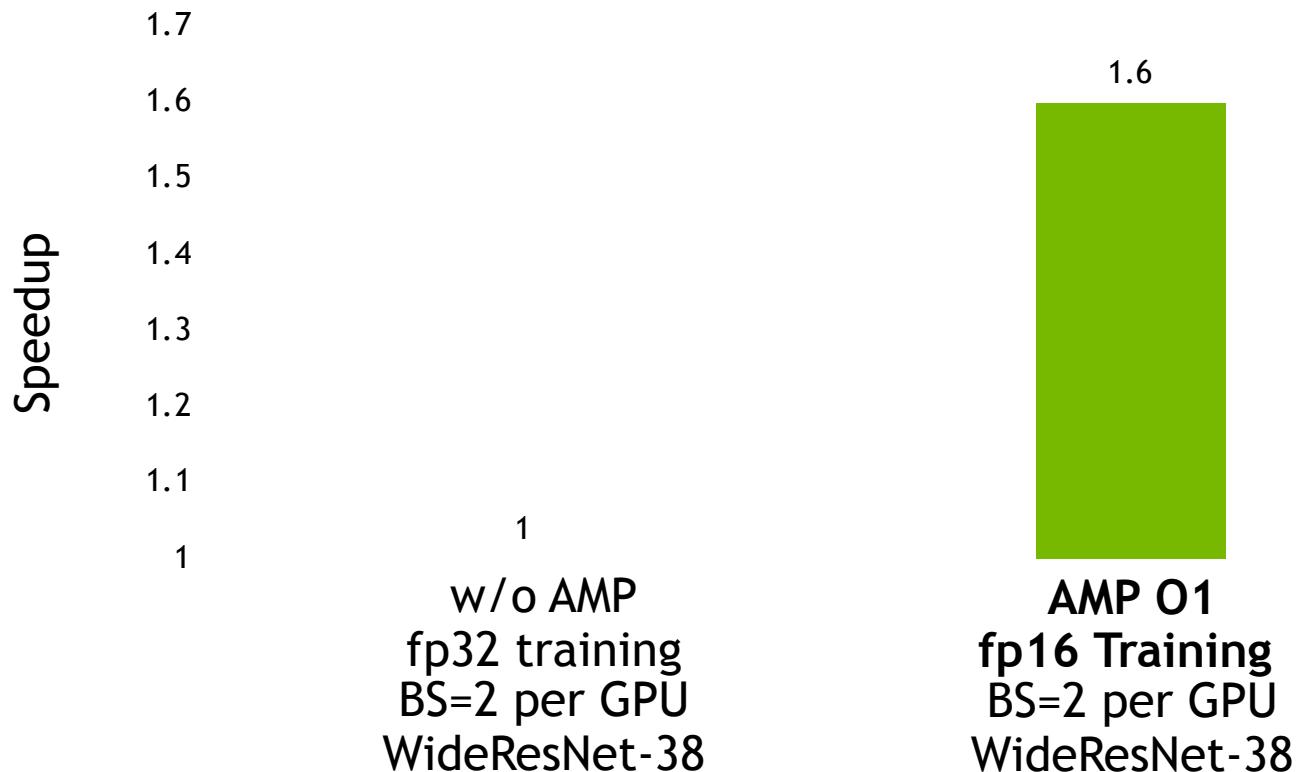
```
from apex import amp

if args.fp16:
    net, optim = amp.initialize(net, optim, opt_level='O1')

if args.fp16:
    with amp.scale_loss(main_loss, optim) as scaled_loss:
        scaled_loss.backward()
else:
    <<main_loss>>
```

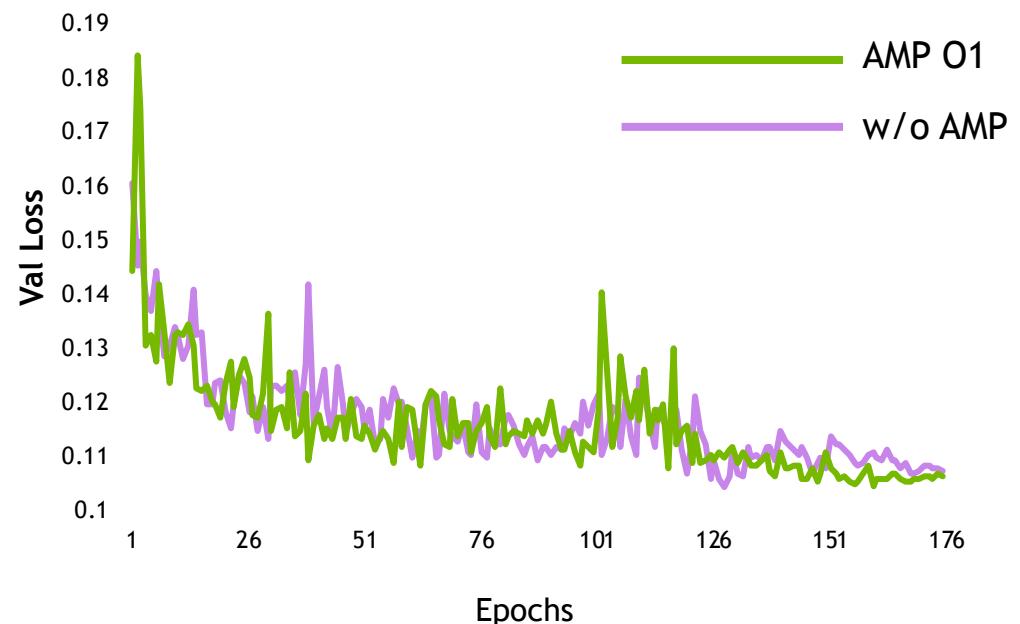
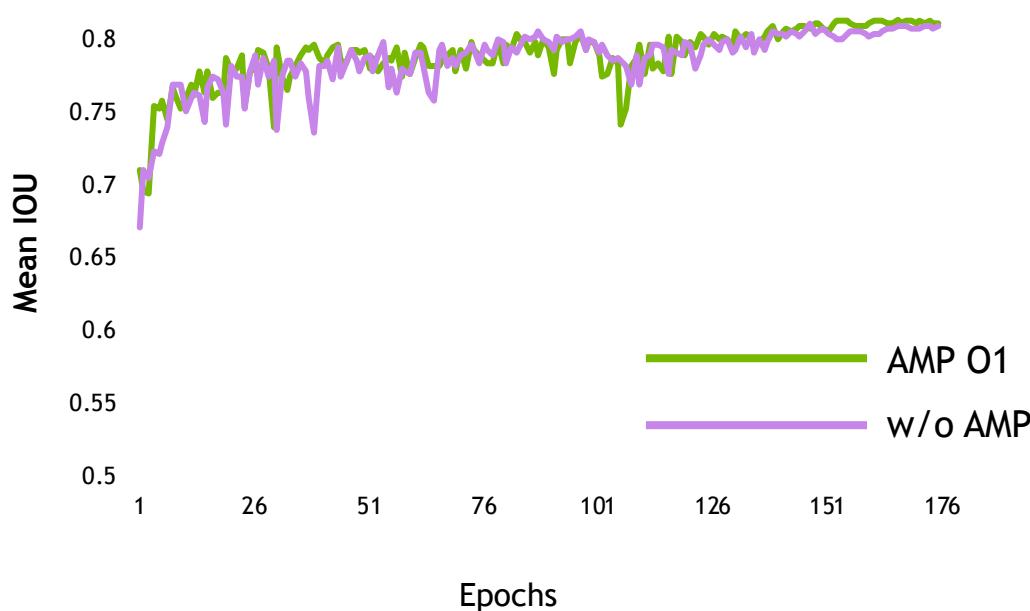
OBTAINED SPEEDUPS (STATE OF THE ART MODEL)

End-to-End Training Speedup

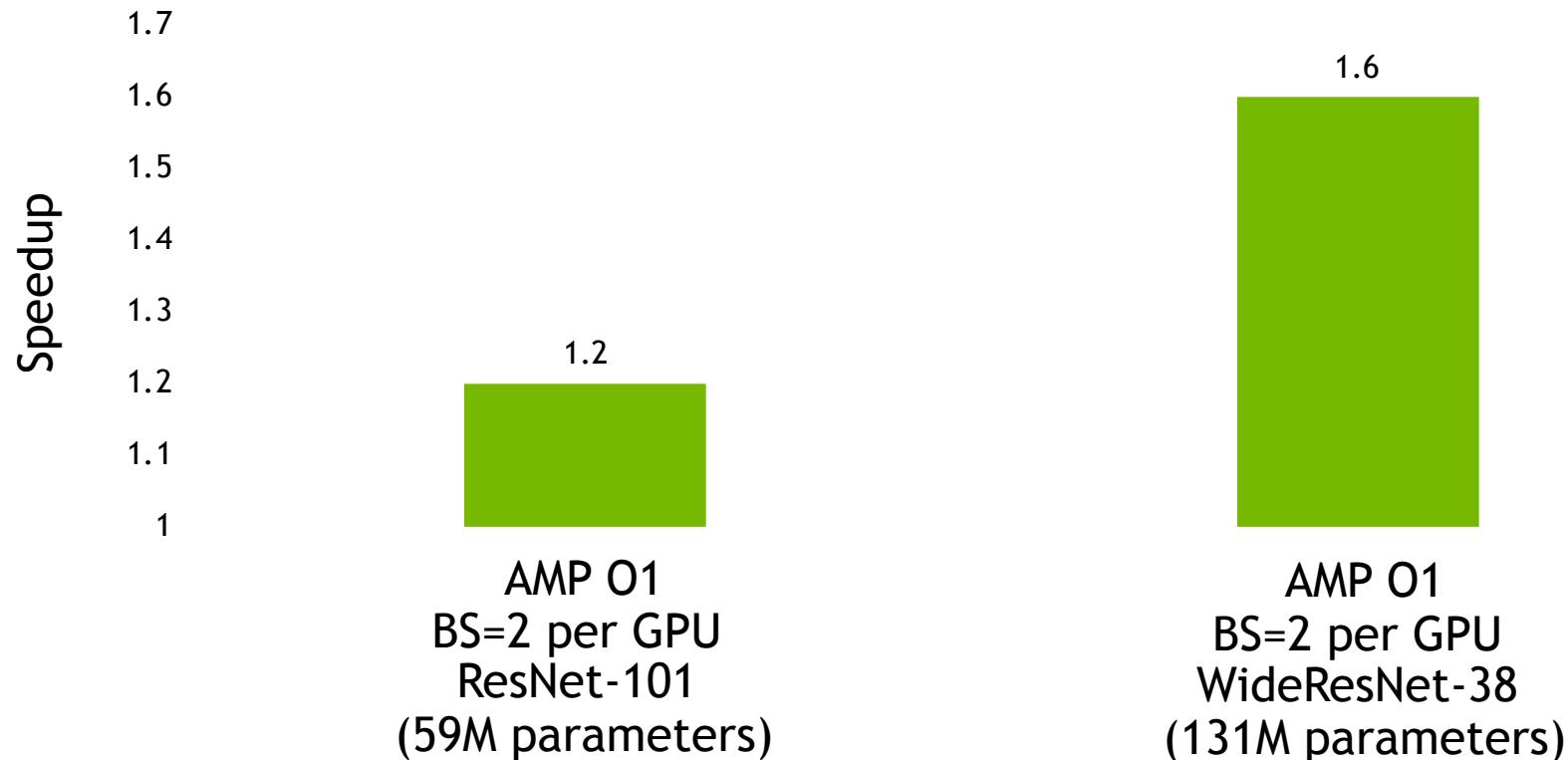


Improving Semantic Segmentation via Video Propagation and Label Relaxation, CVPR'19
<https://arxiv.org/pdf/1812.01593.pdf>

EFFECT ON ACCURACY



OBTAINED SPEEDUPS FOR DIFFERENT BACKBONES



TAKEAWAYS

Easy integration to obtain state-of-the-art semantic segmentation

- Easy integration with big reductions in training time
- **No Impact on IOU**
- Larger the model, larger the speedup
- Enables scaling of model size with fixed training time budget
- Code available at: <https://github.com/NVIDIA/semantic-segmentation>



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