

AFE77xx Power Solution Design Recommendations

1 Trademarks

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2 Introduction

This report provides a block diagram recommendation for an AFE77xx device power solution. The provided solutions support one, two, or four combined AFE77xx devices. The recommendations include options for a conservative approach using LDOs on all analog supplies, and a hybrid approach using LDOs only on the sensitive PLL supplies.

3 Conservative Power Solution

Figure 1 – Figure 3 illustrate recommendations for a conservative power supply solution using LDOs on all analog rails for a one, two, or four AFE configuration.

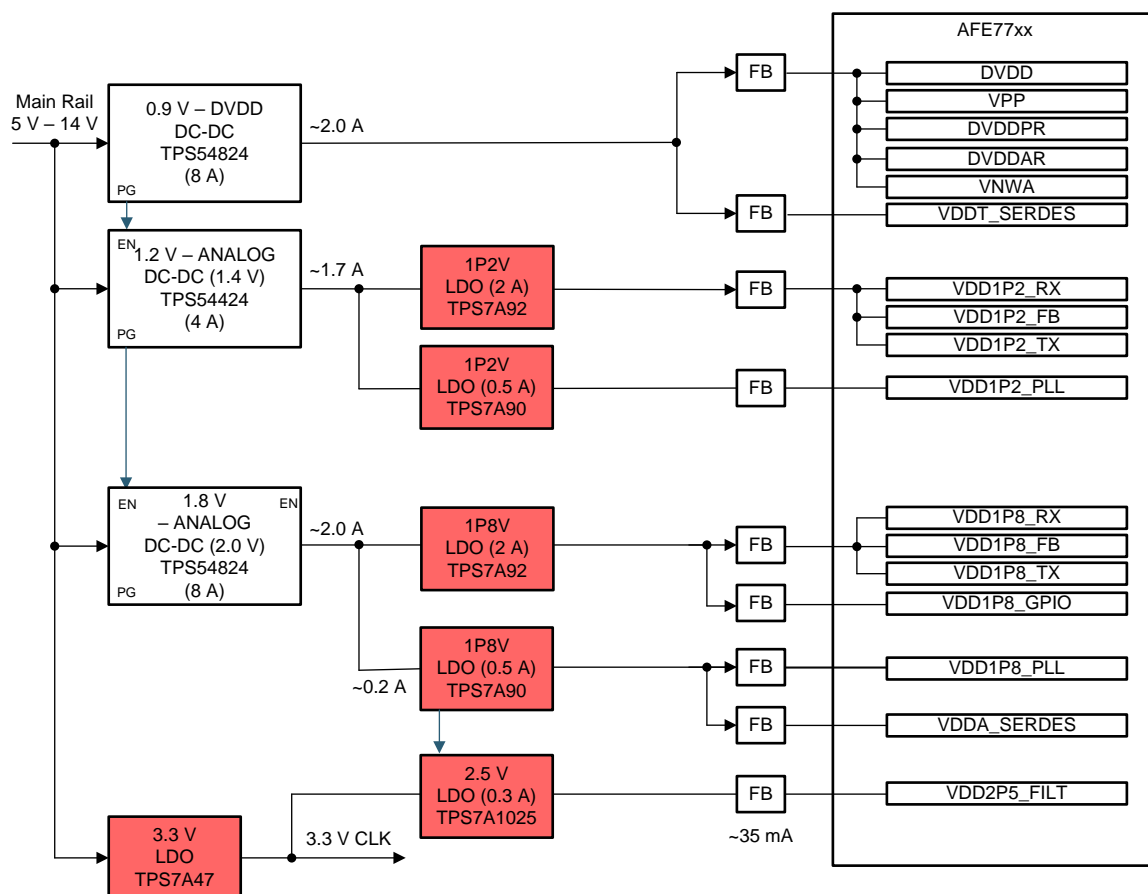


Figure 1. Conservative Single AFE Power Solution

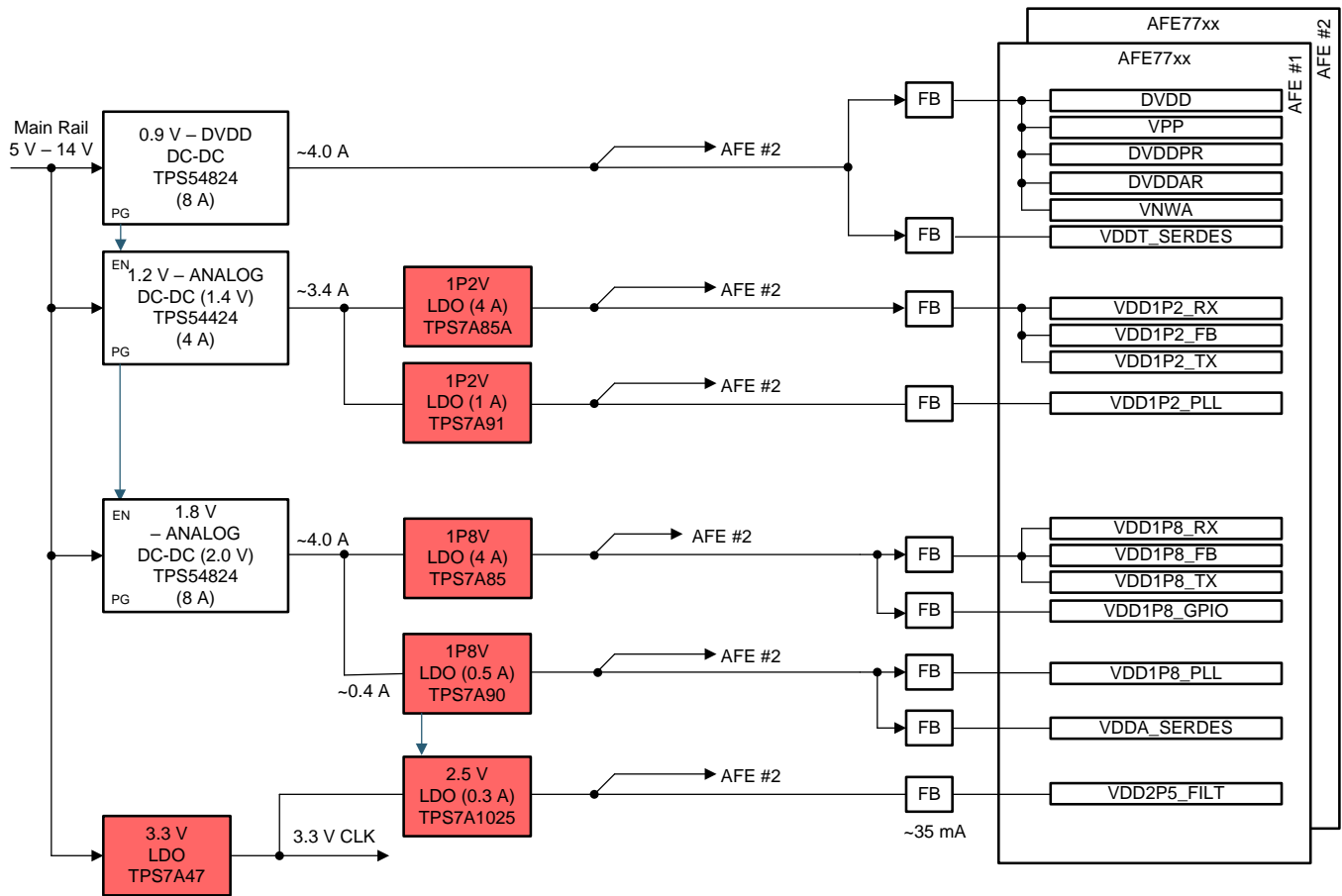


Figure 2. Conservative 2x AFE Power Solution

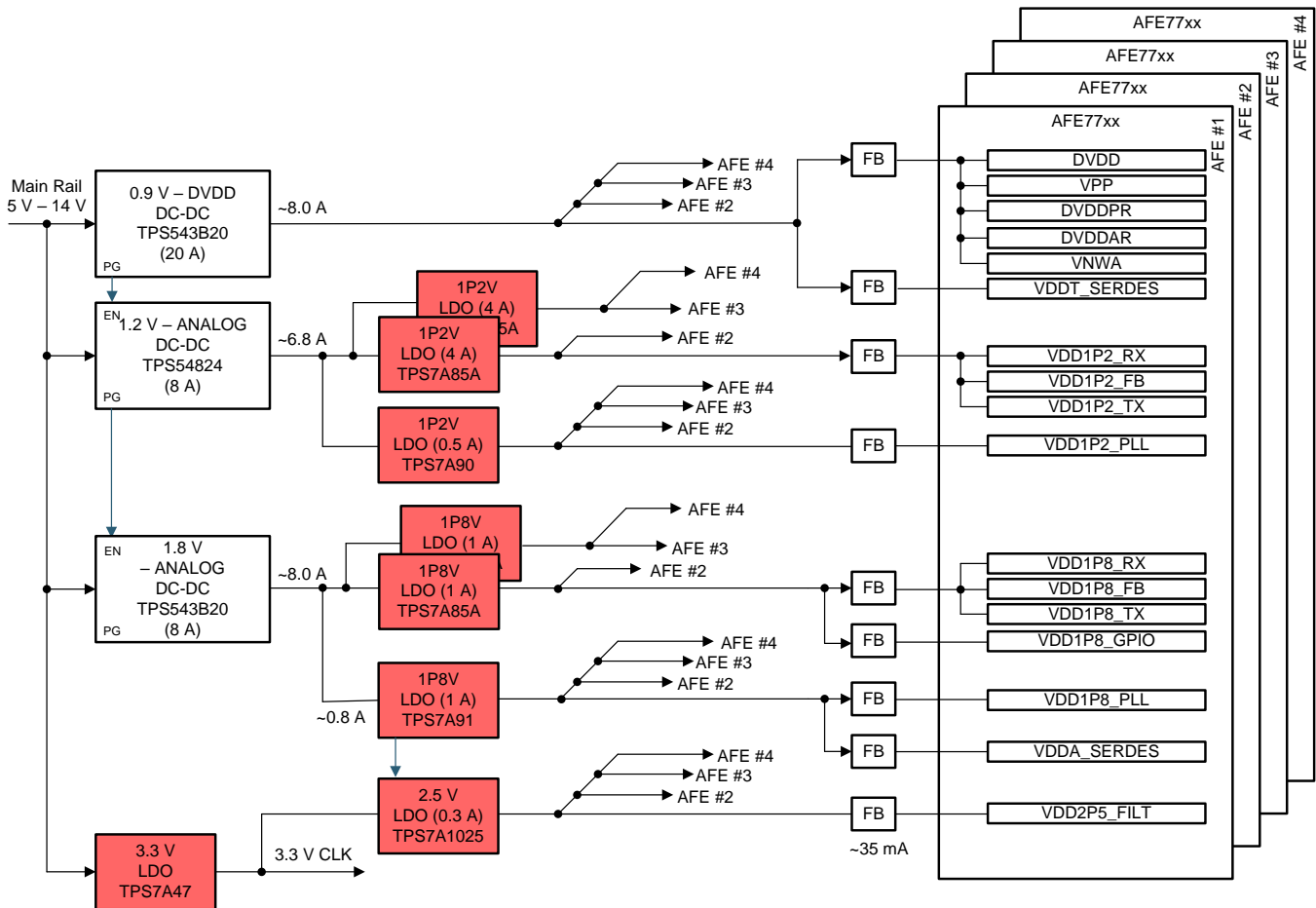


Figure 3. Conservative 4x AFE Power Solution

4 Hybrid Power Solution

Figure 4 – Figure 6 illustrate a hybrid power solution where sensitive PLL rails are supplied from LDOs, but all other supplies are fed from DC/DC converters. This approach yields better overall efficiency while maintaining optimal performance. Additional care must be taken with the layout to ensure sensitive nets are isolated properly, and are not contaminated from DC/DC routing.

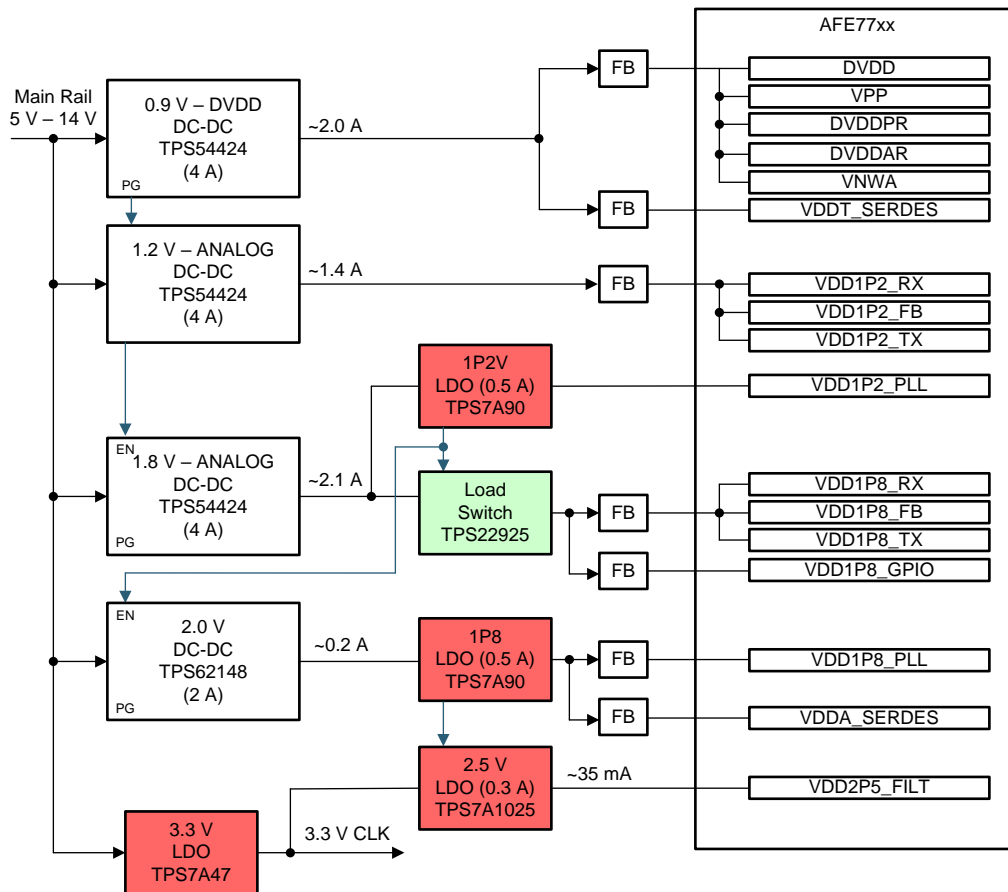


Figure 4. Hybrid Single AFE Power Solution

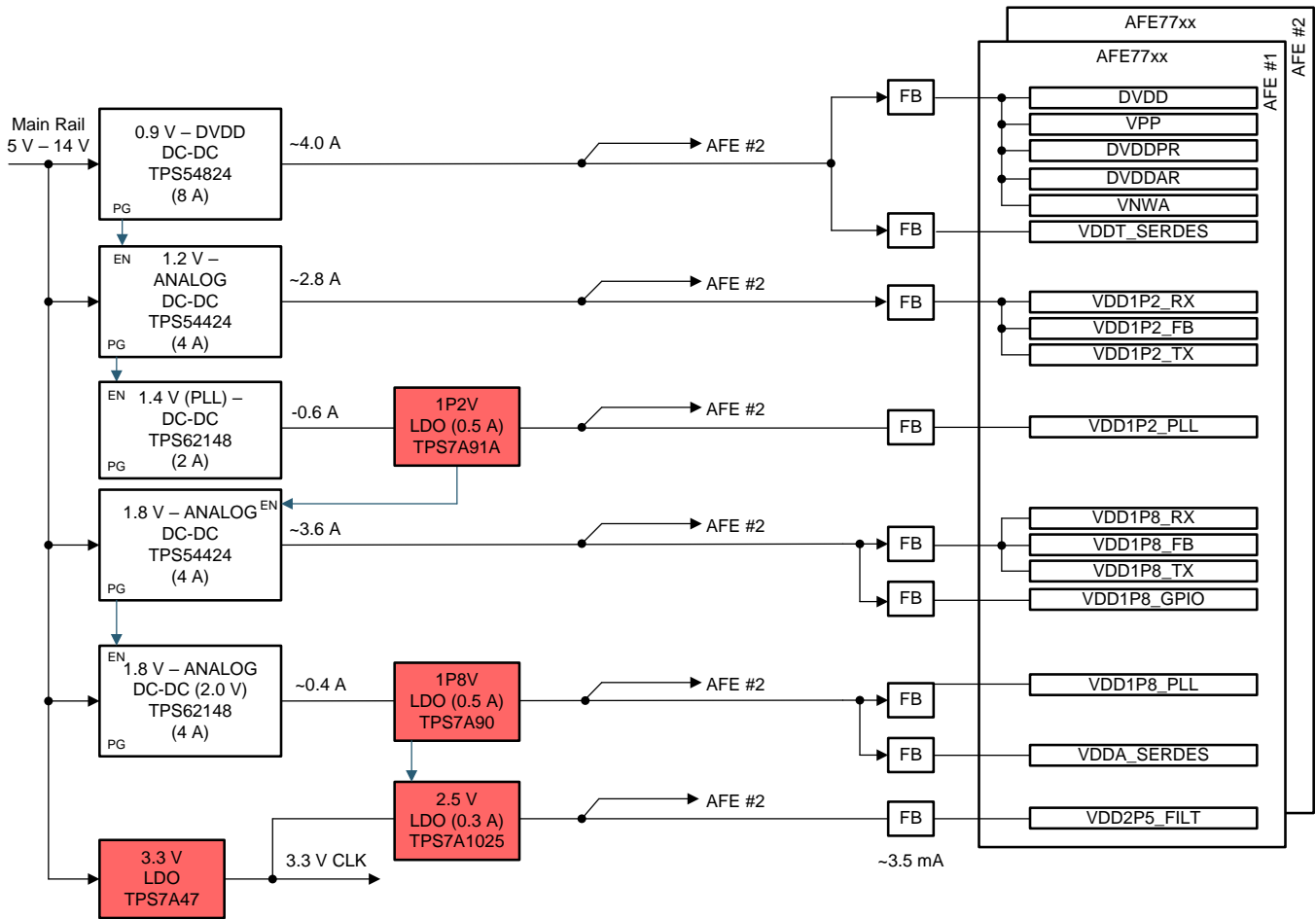


Figure 5. Hybrid 2x AFE Power Solution

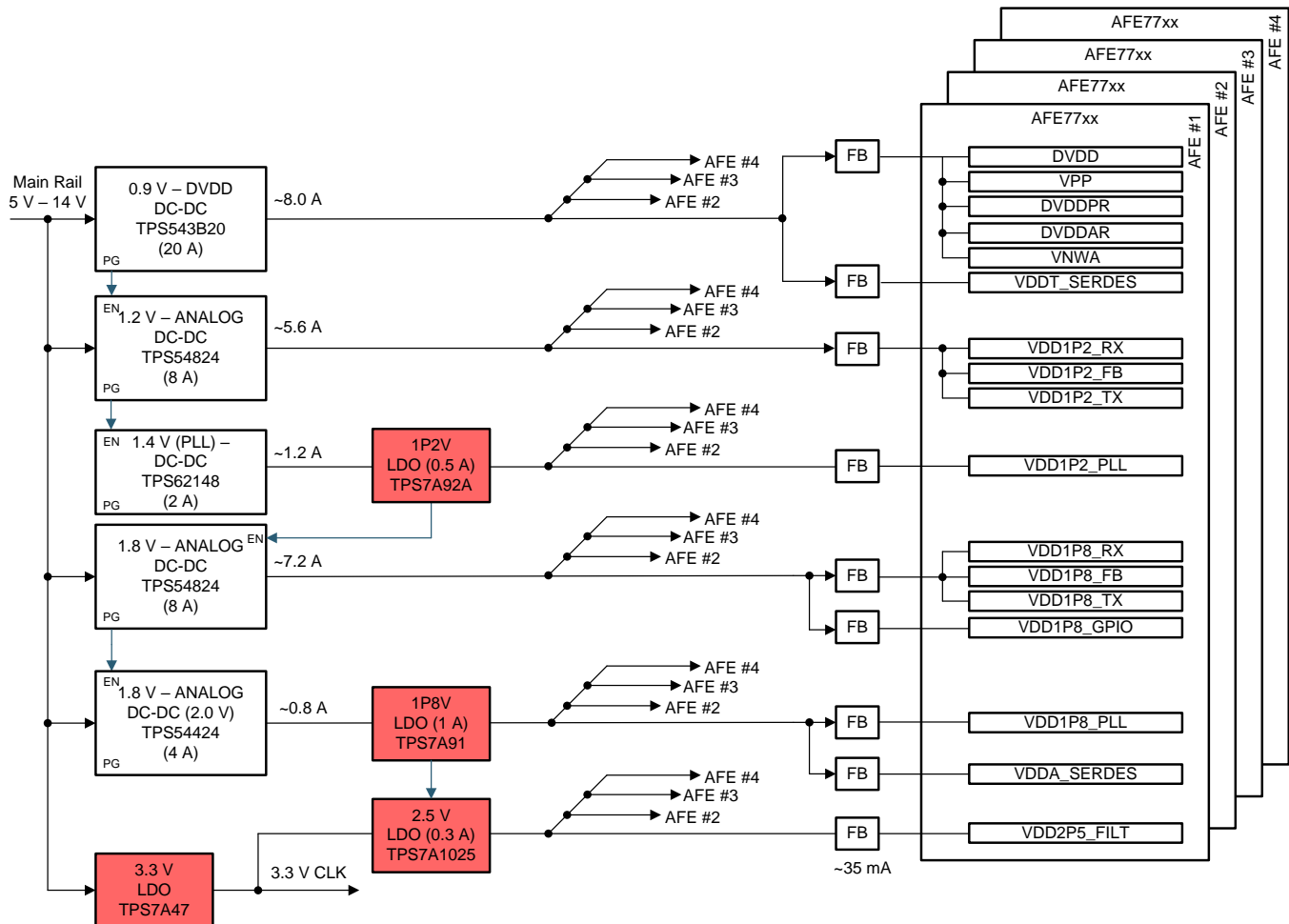


Figure 6. Hybrid 4x AFE Power Solution

5 Summary

This document provides recommendations for a power supply solution for the AFE77xx device. Granted, there are many alternative approaches, and these recommendations are not intended to infer this is the only option. Though not specifically drawn in the block diagram, wide frequency supply bypassing is recommended on all of the power nets.

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