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UNITED STATES PATENT AND TRADEMARK OFFICE

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.  
Petitioner

v.

GODO KAISHA IP BRIDGE 1  
Patent Owner.

Case IPR2017-01844

**PETITION FOR *INTER PARTES* REVIEW OF  
U.S. PATENT NO. 7,893,501  
CLAIMS 6, 12, 13, 19 and 21 (Petition #4)**

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## I. INTRODUCTION

Petitioner Taiwan Semiconductor Manufacturing Company Ltd.

(“Petitioner”) respectfully requests *inter partes* review (“IPR”) of claims 6, 12, 13, 19 and 21 of U.S. Patent No. 7,893,501 (“the ’501 patent”) (Ex-1301).

The ’501 patent claims a conventional MISFET device. The claim limitations of claim 1 (the sole independent claim) are directed to features that were standard to many, if not all, MISFET devices – an active region made of a semiconductor substrate, a gate insulating film, a gate electrode, source/drain regions, and a silicon nitride film.

Applicant obtained allowance of the claims after multiple rejections by amending claim 1 to require that the gate electrode protrude upward from the silicon nitride film. The Examiner’s reason for allowance stated the protruding gate electrode was not in the “prior art of record.” However, the Examiner did not have the benefit of references Misra (Ex-1304) and Igarashi (Ex-1307), which are two examples of MISFETs with a protruding gate electrode.

There was nothing novel about having a protruding gate electrode. The specification of ’501 patent does not even mention this feature, let alone identify any purported advantages. Moreover, MISFETs with a protruding gate electrode are disclosed in prior art references such as Misra and Igarashi. Claim 1 thus recites nothing more than a conventional MISFET with widely used features.

The dependent claims merely recite conventional aspects of MISFETs that are disclosed and rendered obvious by the prior art – *e.g.*, the choice of gate insulating material and the inclusion of standard structures like lightly and heavily doped impurity regions.

Each of the challenged claims is therefore unpatentable.

## II. MANDATORY NOTICES

### A. Real Parties-in-Interest

Taiwan Semiconductor Manufacturing Company Ltd. is the real party-in-interest.

### B. Related Matters

Petitioner is filing three other *inter partes* review petitions challenging the claims of the '501 patent. The following litigation would affect or be affected by a decision in this proceeding: *Godo Kaisha IP Bridge 1 v. Xilinx, Inc.*, Case No. 2:17-cv-00100 (E.D. Tex.).

### C. Counsel

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