Supporting Information for

A 14 VE Pt(0) Phosphabarrelene Complex in the Hydrosilylation of Alkynes.

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Table of contents

Experimental Section

General	**S-2**
Synthesis of complex 2	**S-2**
Synthesis of complex 3	**S-3**
General hydrosilylation procedure	**S-4**
References for vinyl-silanes	**S-5**
$^{31}P\{^{1}H\}$-NMR-spectrum of 4	**S-6**

Crystallographic data

General	**S-7**
Crystallographic data for complex 2	**S-8**
Crystallographic data for complex 2	**S-16**

Experimental Section:

General: All experiments were performed under an atmosphere of dry nitrogen or argon using standard schlenk and glove box techniques. Solvents were freshly distilled under nitrogen from Na (toluene), Na/benzophenone (THF, diethylether, hexanes), P_2O_5 (dichloromethane) and calcium hydride (acetonitrile). Nuclear magnetic resonance spectra were recorded on a Bruker Avance 300 spectrometer operating at 300 MHz for ^{1}H, 75.5 MHz for ^{13}C and 121.5 MHz for ^{31}P. ^{1}H and ^{13}C chemical shifts are reported in ppm relative to Me_4Si as external standard. ^{31}P shifts are relative to a 85% H_3PO_4 external reference. Coupling constants are given in hertz. The following abbreviations are used: br, broad; s, singlet; d, doublet; dd, doublet of doublets; t, triplet; m, multiplet. Elemental analyses were performed by the "Service d'analyse du CNRS", at Gif sur Yvette, France**.** K_2PtCl_4 was purchased from Strem and a solution of 2.1-2.4% of "Karstedts-catalyst" in xylenes from abcr. Phosphabarrelene **1**[1] and $[(COD)PtCl_2]$[2] were prepared according to literature procedures:

(1) Blug, M.; Guibert, C.; Le Goff, X.-F.; Mézailles N.; Le Floch, P. *Chem. Commun.* **2008**, 201.

(2) McDermott, J. X.; White, J. F.; Whitesides, J. F. *J. Am. Chem. Soc.* **1976**, *98*, 6521.

Synthesis of Complex 2:

A mixture of phosphabarrelene **1** (37 mg, 0.1 mmol), $[(COD)PtCl_2]$ (20 mg, 0.05 mmol) and Et_3SiH (20 µL, 0.12 mmol) was heated to 60 °C during 5 min in a sealed schlenk tube. The colorless suspension turned pale yellow. The solvent was evaporated under vacuum and the resulting solid were extracted with hexanes (3 x 5 mL). The residue was dissolved in toluene and filtered through a plug of celite. The title compound was obtained as an off-white powder after evaporation of the solvent.

Single crystals suitable for X-Ray-crystal structure analysis were obtained from a concentrated solution of **2** in THF at -20 °C.

Yield: 38 mg (0.041 mmol, 82 %)

^{1}H NMR($CDCl_3$): -15.56 (t+sat, $^{1}J_{PtH}$ = 588.4 Hz, $^{2}J_{PH}$ = 15.3 Hz, 1H, Pt-H), 0.63 (s, 36H, $SiMe_3$), 1.96 (s, 12H, CH_3), 4.53 (s, 2H, H-4), 6.93 (t, $^{3}J_{HH}$= 7.3 Hz, 2H, CH), 7.05 (d, 1H, CH-9), 7.13 (m, 1H, CH-10), 7.20(m, 1H, CH-11), 9.26 (m, 2H, CH-8).

^{13}C NMR($CDCl_3$): 2.8 (s, SiMe3), 25.0 (*pseudo*-t, $\Sigma J_{PP,PC}$ = 5.5 Hz, Me), 70.3 (*pseudo*-t, $\Sigma J_{PP,PC}$ = 16.8 Hz, C-4), 123.2(br, CH-11), 124.4 (*pseudo*-t, $\Sigma J_{PP,PC}$ = 6.8 Hz, CH-10), 127.5 (CH-9), 132.8(C-12), 134.6 (CH-8), 138.1(*pseudo*-t, $\Sigma J_{PP,PC}$ = 23.1 Hz, C-2 and C-6), 145.4(C-7), 169.5(*pseudo*-t, $\Sigma J_{PP,PC}$ = 2.9 Hz, C-3 and C-5).

^{31}P-NMR($CDCl_3$): -12.97(s+sat, $^{1}J_{PPt}$= 3120 Hz).

Elemental analysis for **2** calc. for $C_{38}H_{59}ClP_2PtSi_4$: C 49.6, H 6.5, found: C 49.6, H 6.6.

Complex 3:

Method A:

Cobaltocene (38 mg, 0.2 mmol) was added as a solid to a solution of [(COD)$PtCl_2$] (37 mg, 0.1 mmol) and phosphabarrelene **1** (70 mg, 0.2 mmol) in MeCN (10 mL) at r.t.. The suspension turned immediately from colorless to intense yellow and after 1h to dark green. After 1 h the reaction mixture was taken to dryness. The residue was extracted with hexanes (3 x 5 mL). The title compound was obtained as a pale yellow powder upon evaporation of the solvent. Colorless crystals were obtained from a concentrated solution of the product in MeCN.

Yield: 84 mg (0.095 mmol, 95%)

Method B:

A mixture of phosphabarrelene **1** (34 mg, 0.1 mmol), [(COD)$PtCl_2$] (20 mg, 0.05 mmol) and Et_3SiH (43 µL, 0.26 mmol) was heated to 60 °C during 2 h in a schlenk tube under a flux of nitrogen. The resulting solution was taken to dryness. Colorless crystals were obtained after recrystalization of the crude product from MeCN.

Yield: 30 mg (0.034 mmol, 68 %)

Characterization:

^{1}H NMR(C_6D_{12}): 0.50 (s, 36H, $SiMe_3$), 2.12(s, 12H, Me), 4.61 (br, 2H ,CH-4), 6.90(m, 4H, CH-9 and CH-10), 7.13 (d, $^{3}J_{HH}$=6.9 Hz, 2H, CH-11), 8.51 (pseudo-q, $\Sigma J_{HH,PH}$ = 5.8 Hz, 2H, CH-8).

^{13}C NMR(C_6D_{12}): 3.0 (*pseudo*-t, $\Sigma J_{PP,PC}$ =1.8 Hz, $SiMe_3$), 24.8 (*pseudo*-t $\Sigma J_{PP,PC}$ = 5.0 Hz, Me) 72.6 (*pseudo*-t, J_{PC} = 14.6 Hz CH-4), 123.5 (m, CH-9), 124.1(pseudo-t, J(P-C):6.2 Hz CH-11), 127.2(m, CH-10), 134.3 (pseudo-t, J(P-C):10.0 Hz CH-8), 136.9(pseudo-t, J(P-C):1.1 Hz C-2,C-6),142.6(pseudo-t, J(P-C):20.7 Hz, C-12) 148.5(s, C-7), 167.3 (pseudo-t, J(P-C):2.8 Hz C-3,C-5).

^{31}P NMR(C_6D_{12}): 5.6 (s+ sat, ^{1}J(Pt-P) = 4644 Hz)

Complex **3** was found to be too oxygen and moisture sensitive to give satisfactory elemental analysis.

General Hydrosilylation procedure:

A solution containing phosphabarrelene **1** (0.68 mg. 0.002 mmol), [(COD)$PtCl_2$] (0.37 mg, 0.001 mmol), Silane (1.2 mmol) and THF (0.5 mL) was heated to 60 ˚C for 2 min in a Schlenk tube capped with a rubber septum. The color of the reaction mixture changed from colorless to intense yellow. Alkyne (1 mmol) was added to the reaction mixture with a microsyringe.

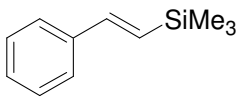
The schlenk tube was immediately placed into a bath of water at 20 °C after the addition of the alkyne.

The isomeric ratio (β(E)/α) was determined by GC analysis. The volatiles were removed under vacuum and the residue was filtered on a pad of silica to remove the catalyst.

All of the vinyl-silanes in Table 1 are known compounds and were characterized by favorable comparison of their ^{1}H and ^{13}C NMR spectra with previously reported data in the literature.

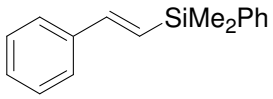
References for synthetisized vinyl-silanes

***(E)*-1-triethylsilyl-2-phenylethene**



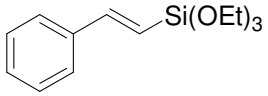
Hamze, A.; Provot, O.; Brion, J.-D.; Alami, M. *J. Organomet. Chem.* **2008**, *693*, 2789.

***(E)*-1-dimethylphenylsilyl-2-phenylethene**



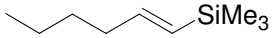
Hamze, A.; Provot, O.; Brion, J.-D.; Alami, M. *J. Organomet. Chem.* **2008**, *693*, 2789.

***(E)*-1-triethoxylsilyl-2-phenylethene**



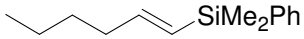
Hamze, A.; Provot, O.; Brion, J.-D.; Alami, M. *J. Organomet. Chem.* **2008**, *693*, 2789.

***(E)*-1-triethylsilyl-hex-1-ene**



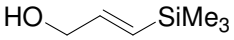
Aneetha, H.; Wu, W.; Verkade, J.G. *Organometalics* **2005,** *24,* 2590.

***(E)*-1-dimethylphenylsilyl-hex-1-ene**



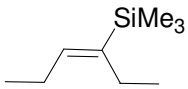
Cauhan, M.; Hauck, B. J.; Keller, L. P.; Boudjouk, P. *J. Organomet. Chem.* **2002,** *645,* 1.

***(E)*-triethylsilyl-2-prop-2-en-1-ol**



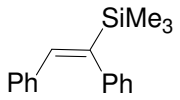
Hamze, A.; Provot, O.; Brion, J.-D.; Alami, M. *J. Organomet. Chem.* **2008**, *693*, 2789.

***(E)*-3-triethylsilyl-hex-3-ene**



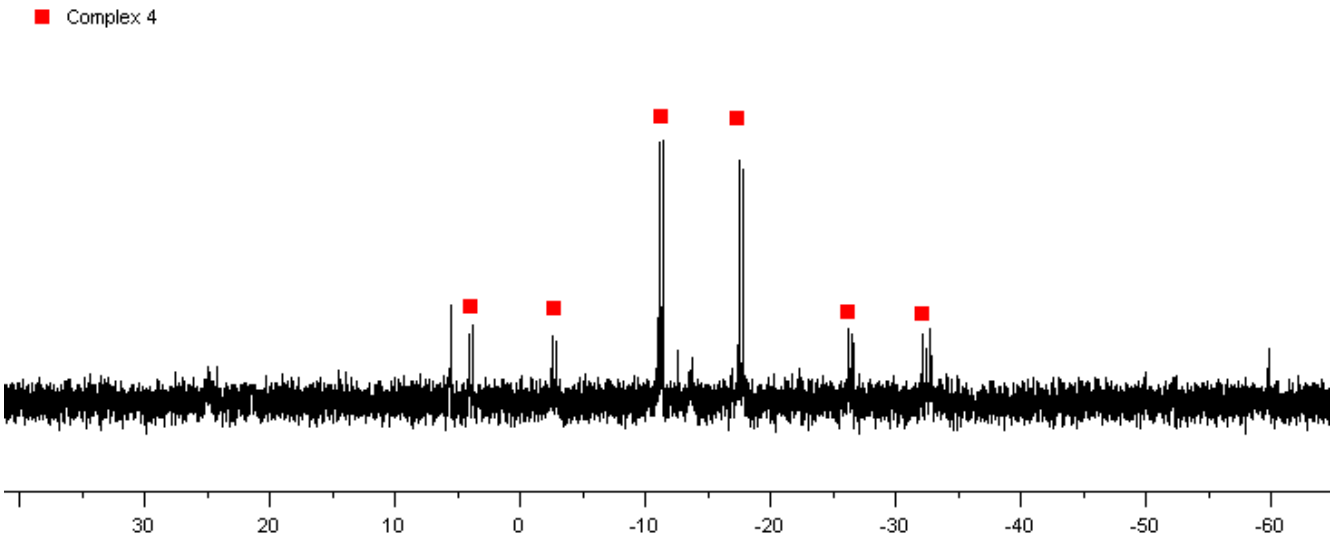
Cauhan, M.; Hauck, B. J.; Keller, L. P.; Boudjouk, P. *J. Organomet. Chem.* **2002,** *645,* 1.

***(E)*-1-triethylsilyl-1,2-diphenyl-ethene**



Cauhan, M.; Hauck, B. J.; Keller, L. P.; Boudjouk, P. *J. Organomet. Chem.* **2002,** *645,* 1.

$^{31}P\{^{1}H\}$-NMR-spectrum of 4



Crystallographic data

General

Data were collected at 150.0-(1) K on a Nonius Kappa CCD diffractometer using a Mo Kα (λ = 0.71070 Å) X-ray source and a graphite monochromator. All data were measured using phi and omega scans. Experimental details are described in Tables S1-1 – S2-1. The crystal structures were solved using SIR 97[1] and Shelxl-97.[2] ORTEP drawings were made using ORTEP III for Windows.[3] CCDC 717538 - 717539 contain the supplementary crystallographic data for this paper. These data can be obtained free of charge at www.ccdc.cam.ac.uk/conts/ retrieving.html or from the Cambridge Crystallographic Data Centre, 12, Union Road, Cambridge CB2 1EZ, UK; fax: (internat.) +44-1223/336-033; E-mail: deposit@ccdc.cam.ac.uk

(1) Altomare, A.; Burla, M. C.; Camalli, M.; Cascarano, G.; Giacovazzo, C.; Guagliardi, A.; Moliterni, A. G. G.; Polidori, G.; Spagna, R. *SIR97, an integrated package of computer programs for the solution and refinementof crystal structures using single crystal data*

(2) Sheldrick, G. M. *SHELXL-97;* Universität Göttingen: Göttingen, Germany, 1997.

(3) Farrugia, L. J. *ORTEP-3;* Department of Chemistry, University of Glasgow.

Crystallographic data for complex 2:

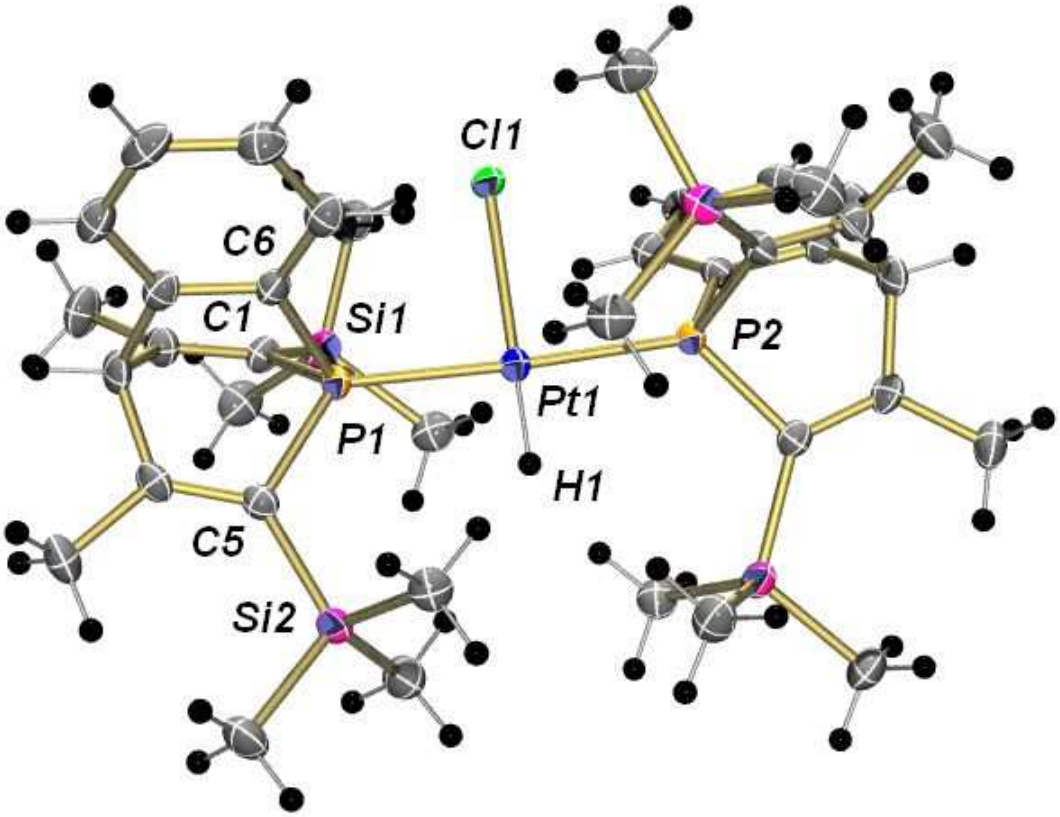


Table S1-1. Crystal data for mb516

Compound	mb516
Molecular formula	$C_{38}H_{59}ClP_2PtSi_4,4(C_4H_8O)$
Molecular weight	1209.11
Crystal habit	Colorless Needle
Crystal dimensions(mm)	0.20x0.10x0.10
Crystal system	monoclinic
Space group	C2/c
a(Å)	19.770(1)
b(Å)	17.431(1)
c(Å)	17.693(1)
α(°)	90.00
β(°)	100.590(1)
γ(°)	90.00
V(Å^3)	5993.3(6)
Z	4
d(g-cm^{-3})	1.340
F(000)	2512
μ(cm^{-1})	2.559
Absorption corrections	multi-scan ; 0.6286 min, 0.7839 max
Diffractometer	KappaCCD
X-ray source	MoKα
λ(Å)	0.71069
Monochromator	graphite
T (K)	150.0(1)
Scan mode	phi and omega scans
Maximum θ	30.02
HKL ranges	-27 26 ; -24 22 ; -17 24
Reflections measured	20562
Unique data	8676
Rint	0.0504
Reflections used	6493
Criterion	I > 2σI)
Refinement type	Fsqd
Hydrogen atoms	mixed
Parameters refined	310
Reflections / parameter	20
wR2	0.1084
R1	0.0452
Weights a, b	0.0505 ; 0.0000
GoF	0.985
difference peak / hole (e Å^{-3})	1.264(0.147) / -3.161(0.147)

Table S1-2. Atomic Coordinates (A x 10^4) and equivalent isotropic displacement parameters (A^2 x 10^3) for mb516

atom	x	y	z	U(eq)
Pt(1)	5000	4725(1)	2500	19(1)
P(1)	3861(1)	4691(1)	1930(1)	19(1)
Si(1)	3486(1)	4092(1)	3569(1)	25(1)
Si(2)	3701(1)	6494(1)	1517(1)	23(1)
Cl(1A)	5000	3340(1)	2500	25(1)
Cl(1B)	5000	6084(5)	2500	25(1)
C(1)	3264(2)	4252(2)	2495(2)	23(1)
C(2)	2651(2)	4122(2)	2054(2)	25(1)
C(3)	2514(2)	4412(3)	1219(2)	26(1)
C(4)	2674(2)	5268(2)	1209(2)	24(1)
C(5)	3314(2)	5511(2)	1513(2)	22(1)
C(6)	3691(2)	4080(2)	1076(2)	22(1)
C(7)	4171(2)	3736(3)	709(2)	29(1)
C(8)	3954(2)	3304(3)	44(2)	32(1)
C(9)	3259(2)	3212(3)	-241(2)	34(1)
C(10)	2775(2)	3550(3)	122(2)	30(1)
C(11)	2992(2)	3989(2)	784(2)	25(1)
C(12)	2058(2)	3675(3)	2280(3)	36(1)
C(13)	2065(2)	5741(3)	841(3)	33(1)
C(14)	4125(2)	4822(3)	4006(2)	31(1)
C(15)	3789(2)	3093(3)	3792(2)	36(1)
C(16)	2724(2)	4278(3)	4036(3)	38(1)
C(17)	3931(2)	6833(3)	2533(2)	36(1)
C(18)	4461(2)	6430(3)	1025(2)	29(1)
C(19)	3121(2)	7228(3)	963(3)	37(1)
O(1)	648(2)	4447(3)	964(4)	98(2)
C(20)	4728(4)	8724(5)	328(6)	103(3)
C(21)	494(4)	3834(6)	484(6)	121(3)
C(22)	136(4)	4523(7)	1387(6)	126(4)
C(23)	4537(5)	9102(7)	988(7)	148(4)
O(2)	3484(3)	2147(4)	1786(4)	123(2)
C(24)	2106(3)	6876(5)	2934(5)	79(2)
C(25)	2053(6)	6187(6)	2943(5)	127(4)
C(26)	1332(6)	5836(5)	2906(8)	170(6)
C(27)	4049(4)	1545(7)	1820(10)	209(8)

U(eq) is defined as 1/3 the trace of the Uij tensor.

Table S1-3. Bond lengths (A) and angles (deg) for mb516

Pt(1)-P(1)	2.293(1)	Pt(1)-P(1)#2	2.293(1)
Pt(1)-Cl(1B)	2.370(8)	Pt(1)-Cl(1A)	2.413(2)
Pt(1)-H(1A)	1.68(1)	Pt(1)-H(1B)	1.70(1)
P(1)-C(6)	1.828(4)	P(1)-C(1)	1.847(4)
P(1)-C(5)	1.862(4)	Si(1)-C(14)	1.858(4)
Si(1)-C(15)	1.860(5)	Si(1)-C(16)	1.876(4)
Si(1)-C(1)	1.890(4)	Si(2)-C(17)	1.867(4)
Si(2)-C(19)	1.871(4)	Si(2)-C(18)	1.873(4)
Si(2)-C(5)	1.876(4)	Cl(1A)-H(1B)	0.71(1)
Cl(1B)-H(1A)	0.69(1)	C(1)-C(2)	1.337(5)
C(2)-C(12)	1.521(5)	C(2)-C(3)	1.537(6)
C(3)-C(11)	1.514(6)	C(3)-C(4)	1.525(6)
C(3)-H(3)	1.0000	C(4)-C(5)	1.349(5)
C(4)-C(13)	1.505(5)	C(6)-C(7)	1.382(5)
C(6)-C(11)	1.392(5)	C(7)-C(8)	1.396(6)
C(7)-H(7)	0.9500	C(8)-C(9)	1.383(6)
C(8)-H(8)	0.9500	C(9)-C(10)	1.381(6)
C(9)-H(9)	0.9500	C(10)-C(11)	1.399(6)
C(10)-H(10)	0.9500	C(12)-H(12A)	0.9800
C(12)-H(12B)	0.9800	C(12)-H(12C)	0.9800
C(13)-H(13A)	0.9800	C(13)-H(13B)	0.9800
C(13)-H(13C)	0.9800	C(14)-H(14A)	0.9800
C(14)-H(14B)	0.9800	C(14)-H(14C)	0.9800
C(15)-H(15A)	0.9800	C(15)-H(15B)	0.9800
C(15)-H(15C)	0.9800	C(16)-H(16A)	0.9800
C(16)-H(16B)	0.9800	C(16)-H(16C)	0.9800
C(17)-H(17A)	0.9800	C(17)-H(17B)	0.9800
C(17)-H(17C)	0.9800	C(18)-H(18A)	0.9800
C(18)-H(18B)	0.9800	C(18)-H(18C)	0.9800
C(19)-H(19A)	0.9800	C(19)-H(19B)	0.9800
C(19)-H(19C)	0.9800	O(1)-C(21)	1.36(1)
O(1)-C(22)	1.37(1)	C(20)-C(23)	1.45(1)
C(20)-C(21)#3	1.50(1)	C(20)-H(20A)	0.9900
C(20)-H(20B)	0.9900	C(21)-C(20)#3	1.50(1)
C(21)-H(21A)	0.9900	C(21)-H(21B)	0.9900
C(22)-C(23)#3	1.46(1)	C(22)-H(22A)	0.9900
C(22)-H(22B)	0.9900	C(23)-C(22)#3	1.46(1)
C(23)-H(23A)	0.9900	C(23)-H(23B)	0.9900
O(2)-C(24)#4	1.428(8)	O(2)-C(27)	1.53(1)
C(24)-C(25)	1.21(1)	C(24)-O(2)#4	1.428(8)
C(24)-H(24A)	0.9900	C(24)-H(24B)	0.9900
C(25)-C(26)	1.54(1)	C(25)-H(25A)	0.9900
C(25)-H(25B)	0.9900	C(26)-C(27)#4	1.57(1)
C(26)-H(26A)	0.9900	C(26)-H(26B)	0.9900
C(27)-C(26)#4	1.57(1)	C(27)-H(27A)	0.9900
C(27)-H(27B)	0.9900		

P(1)-Pt(1)-P(1)#2	177.03(5)	P(1)-Pt(1)-Cl(1B)	91.48(3)
P(1)#2-Pt(1)-Cl(1B)	91.48(3)	P(1)-Pt(1)-Cl(1A)	88.52(3)
P(1)#2-Pt(1)-Cl(1A)	88.52(3)	Cl(1B)-Pt(1)-Cl(1A)	180.000(1)
P(1)-Pt(1)-H(1A)	91.48(3)	P(1)#2-Pt(1)-H(1A)	91.48(3)
Cl(1B)-Pt(1)-H(1A)	0.000(1)	Cl(1A)-Pt(1)-H(1A)	180.000(2)
P(1)-Pt(1)-H(1B)	88.52(3)	P(1)#2-Pt(1)-H(1B)	88.52(3)
Cl(1B)-Pt(1)-H(1B)	180.000(2	Cl(1A)-Pt(1)-H(1B)	0.0
H(1A)-Pt(1)-H(1B)	180.000(2	C(6)-P(1)-C(1)	99.7(2)
C(6)-P(1)-C(5)	96.6(2)	C(1)-P(1)-C(5)	98.7(2)
C(6)-P(1)-Pt(1)	113.3(1)	C(1)-P(1)-Pt(1)	116.4(1)
C(5)-P(1)-Pt(1)	127.3(1)	C(14)-Si(1)-C(15)	112.7(2)
C(14)-Si(1)-C(16)	103.8(2)	C(15)-Si(1)-C(16)	108.8(2)
C(14)-Si(1)-C(1)	109.3(2)	C(15)-Si(1)-C(1)	110.9(2)
C(16)-Si(1)-C(1)	111.2(2)	C(17)-Si(2)-C(19)	107.8(2)
C(17)-Si(2)-C(18)	113.1(2)	C(19)-Si(2)-C(18)	105.3(2)
C(17)-Si(2)-C(5)	108.7(2)	C(19)-Si(2)-C(5)	114.3(2)
C(18)-Si(2)-C(5)	107.8(2)	Pt(1)-Cl(1A)-H(1B)	0.000(1)
Pt(1)-Cl(1B)-H(1A)	0.000(2)	C(2)-C(1)-P(1)	110.8(3)
C(2)-C(1)-Si(1)	125.5(3)	P(1)-C(1)-Si(1)	123.6(2)
C(1)-C(2)-C(12)	126.4(4)	C(1)-C(2)-C(3)	119.1(3)

C(12)-C(2)-C(3)	114.5(3)	C(11)-C(3)-C(4)	108.6(3)
C(11)-C(3)-C(2)	108.2(3)	C(4)-C(3)-C(2)	109.4(3)
C(11)-C(3)-H(3)	110.2	C(4)-C(3)-H(3)	110.2
C(2)-C(3)-H(3)	110.2	C(5)-C(4)-C(13)	128.1(4)
C(5)-C(4)-C(3)	119.0(4)	C(13)-C(4)-C(3)	112.9(3)
C(4)-C(5)-P(1)	110.5(3)	C(4)-C(5)-Si(2)	129.9(3)
P(1)-C(5)-Si(2)	119.5(2)	C(7)-C(6)-C(11)	119.8(4)
C(7)-C(6)-P(1)	127.1(3)	C(11)-C(6)-P(1)	113.1(3)
C(6)-C(7)-C(8)	119.9(4)	C(6)-C(7)-H(7)	120.0
C(8)-C(7)-H(7)	120.0	C(9)-C(8)-C(7)	120.0(4)
C(9)-C(8)-H(8)	120.0	C(7)-C(8)-H(8)	120.0
C(10)-C(9)-C(8)	120.6(4)	C(10)-C(9)-H(9)	119.7
C(8)-C(9)-H(9)	119.7	C(9)-C(10)-C(11)	119.4(4)
C(9)-C(10)-H(10)	120.3	C(11)-C(10)-H(10)	120.3
C(6)-C(11)-C(10)	120.2(4)	C(6)-C(11)-C(3)	115.2(3)
C(10)-C(11)-C(3)	124.6(4)	C(2)-C(12)-H(12A)	109.5
C(2)-C(12)-H(12B)	109.5	H(12A)-C(12)-H(12B)	109.5
C(2)-C(12)-H(12C)	109.5	H(12A)-C(12)-H(12C)	109.5
H(12B)-C(12)-H(12C)	109.5	C(4)-C(13)-H(13A)	109.5
C(4)-C(13)-H(13B)	109.5	H(13A)-C(13)-H(13B)	109.5
C(4)-C(13)-H(13C)	109.5	H(13A)-C(13)-H(13C)	109.5
H(13B)-C(13)-H(13C)	109.5	Si(1)-C(14)-H(14A)	109.5
Si(1)-C(14)-H(14B)	109.5	H(14A)-C(14)-H(14B)	109.5
Si(1)-C(14)-H(14C)	109.5	H(14A)-C(14)-H(14C)	109.5
H(14B)-C(14)-H(14C)	109.5	Si(1)-C(15)-H(15A)	109.5
Si(1)-C(15)-H(15B)	109.5	H(15A)-C(15)-H(15B)	109.5
Si(1)-C(15)-H(15C)	109.5	H(15A)-C(15)-H(15C)	109.5
H(15B)-C(15)-H(15C)	109.5	Si(1)-C(16)-H(16A)	109.5
Si(1)-C(16)-H(16B)	109.5	H(16A)-C(16)-H(16B)	109.5
Si(1)-C(16)-H(16C)	109.5	H(16A)-C(16)-H(16C)	109.5
H(16B)-C(16)-H(16C)	109.5	Si(2)-C(17)-H(17A)	109.5
Si(2)-C(17)-H(17B)	109.5	H(17A)-C(17)-H(17B)	109.5
Si(2)-C(17)-H(17C)	109.5	H(17A)-C(17)-H(17C)	109.5
H(17B)-C(17)-H(17C)	109.5	Si(2)-C(18)-H(18A)	109.5
Si(2)-C(18)-H(18B)	109.5	H(18A)-C(18)-H(18B)	109.5
Si(2)-C(18)-H(18C)	109.5	H(18A)-C(18)-H(18C)	109.5
H(18B)-C(18)-H(18C)	109.5	Si(2)-C(19)-H(19A)	109.5
Si(2)-C(19)-H(19B)	109.5	H(19A)-C(19)-H(19B)	109.5
Si(2)-C(19)-H(19C)	109.5	H(19A)-C(19)-H(19C)	109.5
H(19B)-C(19)-H(19C)	109.5	C(21)-O(1)-C(22)	108.2(6)
C(23)-C(20)-C(21)#3	101.4(7)	C(23)-C(20)-H(20A)	111.5
C(21)#3-C(20)-H(20A)	111.5	C(23)-C(20)-H(20B)	111.5
C(21)#3-C(20)-H(20B)	111.5	H(20A)-C(20)-H(20B)	109.3
O(1)-C(21)-C(20)#3	108.5(7)	O(1)-C(21)-H(21A)	110.0
C(20)#3-C(21)-H(21A)	110.0	O(1)-C(21)-H(21B)	110.0
C(20)#3-C(21)-H(21B)	110.0	H(21A)-C(21)-H(21B)	108.4
O(1)-C(22)-C(23)#3	107.6(8)	O(1)-C(22)-H(22A)	110.2
C(23)#3-C(22)-H(22A)	110.2	O(1)-C(22)-H(22B)	110.2
C(23)#3-C(22)-H(22B)	110.2	H(22A)-C(22)-H(22B)	108.5
C(20)-C(23)-C(22)#3	108.0(8)	C(20)-C(23)-H(23A)	110.1
C(22)#3-C(23)-H(23A)	110.1	C(20)-C(23)-H(23B)	110.1
C(22)#3-C(23)-H(23B)	110.1	H(23A)-C(23)-H(23B)	108.4
C(24)#4-O(2)-C(27)	113.5(8)	C(25)-C(24)-O(2)#4	104.3(8)
C(25)-C(24)-H(24A)	110.9	O(2)#4-C(24)-H(24A)	110.9
C(25)-C(24)-H(24B)	110.9	O(2)#4-C(24)-H(24B)	110.9
H(24A)-C(24)-H(24B)	108.9	C(24)-C(25)-C(26)	118(1)
C(24)-C(25)-H(25A)	107.7	C(26)-C(25)-H(25A)	107.7
C(24)-C(25)-H(25B)	107.7	C(26)-C(25)-H(25B)	107.7
H(25A)-C(25)-H(25B)	107.1	C(25)-C(26)-C(27)#4	99.6(6)
C(25)-C(26)-H(26A)	111.9	C(27)#4-C(26)-H(26A)	111.9
C(25)-C(26)-H(26B)	111.9	C(27)#4-C(26)-H(26B)	111.9
H(26A)-C(26)-H(26B)	109.6	O(2)-C(27)-C(26)#4	99.4(7)
O(2)-C(27)-H(27A)	111.9	C(26)#4-C(27)-H(27A)	111.9
O(2)-C(27)-H(27B)	111.9	C(26)#4-C(27)-H(27B)	111.9
H(27A)-C(27)-H(27B)	109.6		

Estimated standard deviations are given in the parenthesis.
Symmetry operators ::

1: x, y, z	2: -x, y, -z+1/2	3: x+1/2, y+1/2, z
4: -x+1/2, y+1/2, -z+1/	5: -x, -y, -z	6: x, -y, z-1/2

7: -x+1/2, -y+1/2, -z 8: x+1/2, -y+1/2, z-1/2

Table S1-4. Anisotropic displacement parameters (A^2 x 10^3) for mb516

atom	U11	U22	U33	U23	U13	U12
Pt(1)	17(1)	20(1)	19(1)	0	0(1)	0
P(1)	16(1)	20(1)	18(1)	0(1)	-1(1)	-1(1)
Si(1)	28(1)	27(1)	20(1)	0(1)	4(1)	-3(1)
Si(2)	23(1)	22(1)	24(1)	1(1)	0(1)	3(1)
Cl(1A)	24(1)	16(1)	30(1)	0	-5(1)	0
Cl(1B)	24(1)	16(1)	30(1)	0	-5(1)	0
C(1)	22(2)	23(2)	23(2)	0(2)	4(2)	-5(2)
C(2)	23(2)	28(2)	23(2)	2(2)	3(2)	-1(2)
C(3)	19(2)	33(2)	23(2)	0(2)	-6(2)	-1(2)
C(4)	22(2)	28(2)	20(2)	5(2)	2(2)	6(2)
C(5)	23(2)	23(2)	20(2)	0(2)	3(2)	3(2)
C(6)	22(2)	20(2)	21(2)	1(2)	1(2)	-3(2)
C(7)	30(2)	31(2)	23(2)	1(2)	1(2)	-2(2)
C(8)	41(2)	31(3)	26(2)	-4(2)	6(2)	1(2)
C(9)	48(3)	29(2)	23(2)	-4(2)	-1(2)	-11(2)
C(10)	31(2)	31(2)	25(2)	-1(2)	-2(2)	-8(2)
C(11)	27(2)	25(2)	21(2)	3(2)	-1(2)	-4(2)
C(12)	28(2)	45(3)	34(2)	3(2)	5(2)	-14(2)
C(13)	21(2)	43(3)	34(2)	8(2)	2(2)	7(2)
C(14)	39(2)	32(3)	21(2)	-1(2)	5(2)	-2(2)
C(15)	46(3)	33(3)	27(2)	1(2)	0(2)	-3(2)
C(16)	40(2)	42(3)	34(2)	-3(2)	16(2)	-7(2)
C(17)	35(2)	35(3)	34(2)	-6(2)	-1(2)	3(2)
C(18)	31(2)	32(2)	25(2)	5(2)	7(2)	0(2)
C(19)	31(2)	31(3)	48(3)	10(2)	4(2)	8(2)
O(1)	46(3)	95(4)	145(5)	5(4)	-1(3)	-19(3)
C(20)	77(5)	80(6)	135(8)	-5(6)	-29(5)	-16(4)
C(21)	64(5)	130(10)	150(10)	-52(7)	-17(5)	10(5)
C(22)	67(5)	170(10)	140(10)	-41(8)	8(6)	-33(6)
C(23)	78(6)	190(10)	180(10)	-40(10)	18(7)	-47(7)
O(2)	111(5)	120(5)	138(5)	5(4)	22(4)	-16(4)
C(24)	51(4)	84(6)	104(6)	37(5)	23(4)	27(4)
C(25)	210(10)	107(8)	82(6)	-39(6)	72(7)	-57(8)
C(26)	170(10)	35(5)	260(10)	-15(7)	-70(10)	-30(6)
C(27)	52(5)	120(10)	440(20)	-100(10)	-10(10)	10(6)

The anisotropic displacement factor exponent takes the form
2 pi^2 [h^2a*^2U(11) +...+ 2hka*b*U(12)]

Table S1-5. Hydrogen Coordinates (A x 10^4) and equivalent isotropic displacement parameters (A^2 x 10^3) for mb516

atom	x	y	z	U(eq)
H(1A)	5000	5686(6)	2500	29
H(1B)	5000	3748(6)	2500	29
H(3)	2023	4316	974	32
H(7)	4648	3794	908	34
H(8)	4284	3072	-212	39
H(9)	3114	2913	-691	41
H(10)	2298	3485	-76	36
H(12A)	2191	3495	2812	54
H(12B)	1948	3233	1937	54
H(12C)	1654	4008	2239	54
H(13A)	2194	6284	860	50
H(13B)	1685	5664	1120	50
H(13C)	1920	5582	304	50
H(14A)	4532	4793	3765	46
H(14B)	4258	4725	4559	46
H(14C)	3920	5335	3924	46
H(15A)	3450	2731	3518	54
H(15B)	3845	3003	4347	54
H(15C)	4232	3017	3629	54
H(16A)	2454	4703	3774	56
H(16B)	2882	4411	4578	56
H(16C)	2437	3816	4002	56
H(17A)	3510	6922	2737	53
H(17B)	4192	7313	2549	53
H(17C)	4212	6443	2843	53
H(18A)	4783	6043	1282	44
H(18B)	4691	6929	1049	44
H(18C)	4306	6284	486	44
H(19A)	2965	7046	435	56
H(19B)	3371	7711	952	56
H(19C)	2722	7311	1209	56
H(20A)	4510	8972	-159.0000	124
H(20B)	4603	8173	310	124
H(21A)	724	3367	727	145
H(21B)	658	3926	-4	145
H(22A)	20	5071	1434	151
H(22B)	289	4311	1910	151
H(23A)	4390	8717	1337	177
H(23B)	4149	9459	818	177
H(24A)	2105	7064	2406	94
H(24B)	2536	7046	3272	94
H(25A)	2351	5996	3418	153
H(25B)	2243	5981	2504	153
H(26A)	1341	5393	3258	204
H(26B)	1122	5679	2377	204
H(27A)	4468	1684	2190	250
H(27B)	4169	1456	1305	250

Crystallographic data for complex 3:

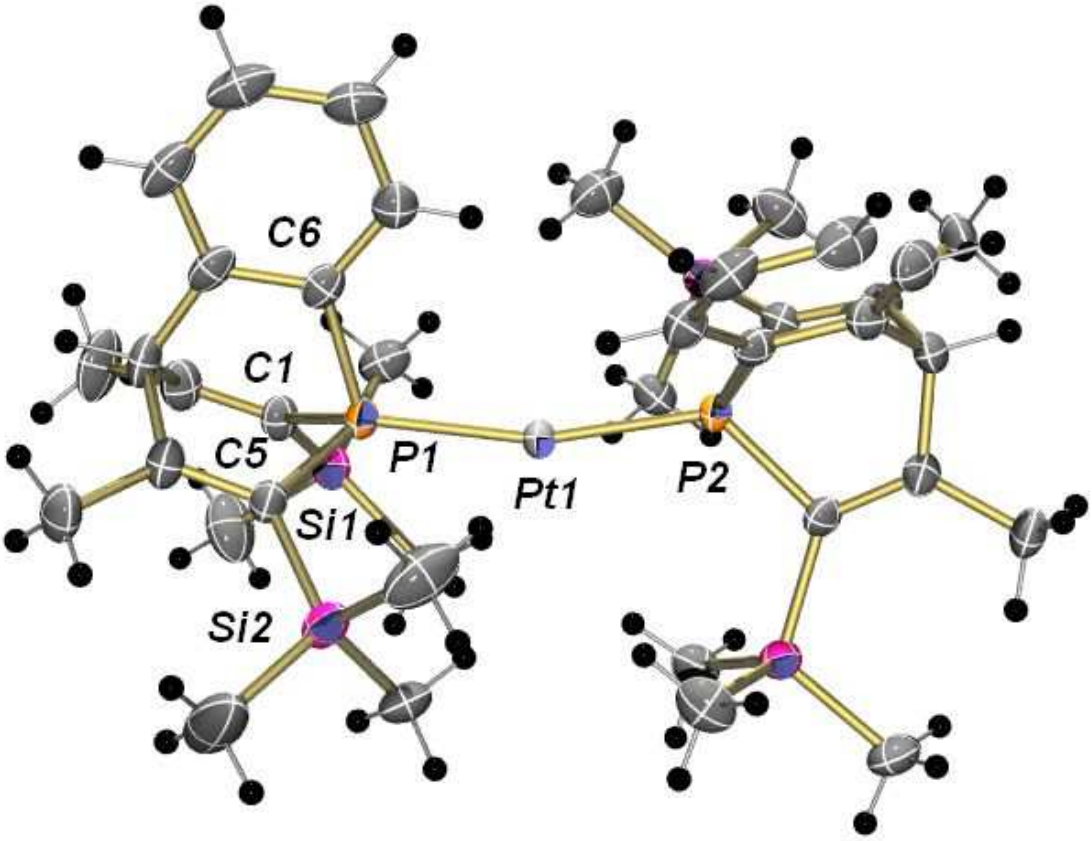


Table S2-1. Crystal data for mb623

Compound	mb623
Molecular formula	$C_{38}H_{58}P_2PtSi_4$
Molecular weight	884.23
Crystal habit	Colorless Block
Crystal dimensions(mm)	0.20x0.10x0.04
Crystal system	orthorhombic
Space group	Pbca
a(Å)	10.333(1)
b(Å)	18.871(1)
c(Å)	43.480(1)
α(°)	90.00
β(°)	90.00
γ(°)	90.00
V(Å^3)	8478.3(10)
Z	8
d(g-cm^{-3})	1.385
F(000)	3600
μ(cm^{-1})	3.523
Absorption corrections	multi-scan ; 0.5393 min, 0.8719 max
Diffractometer	KappaCCD
X-ray source	MoKα
λ(Å)	0.71069
Monochromator	graphite
T (K)	150.0(1)
Scan mode	phi and omega scans
Maximum θ	28.28
HKL ranges	-13 11 ; -25 20 ; -57 57
Reflections measured	35911
Unique data	10342
Rint	0.0591
Reflections used	6794
Criterion	I > 2σI)
Refinement type	Fsqd
Hydrogen atoms	constr
Parameters refined	422
Reflections / parameter	16
wR2	0.0827
R1	0.0372
Weights a, b	0.0277 ; 7.4025
GoF	0.995
difference peak / hole (e Å^{-3})	1.211(0.114) / -1.378(0.114)

Table S2-2. Atomic Coordinates (A x 10^4) and equivalent isotropic displacement parameters (A^2 x 10^3) for mb623

atom	x	y	z	U(eq)
Pt(1)	5264(1)	440(1)	1213(1)	25(1)
P(1)	4296(1)	-54(1)	1622(1)	25(1)
P(2)	6691(1)	694(1)	842(1)	24(1)
Si(1)	3581(1)	1431(1)	1958(1)	32(1)
Si(2)	2023(1)	-711(1)	1212(1)	37(1)
Si(3)	4606(1)	1312(1)	363(1)	30(1)
Si(4)	8185(1)	1722(1)	1311(1)	30(1)
C(1)	3754(4)	445(2)	1967(1)	30(1)
C(2)	3434(4)	10(3)	2202(1)	37(1)
C(3)	3455(4)	-794(2)	2145(1)	34(1)
C(4)	2571(4)	-951(2)	1864(1)	33(1)
C(5)	2852(4)	-647(2)	1592(1)	28(1)
C(6)	5376(4)	-679(2)	1817(1)	29(1)
C(7)	6640(4)	-830(2)	1731(1)	33(1)
C(8)	7364(5)	-1332(3)	1895(1)	43(1)
C(9)	6785(5)	-1681(3)	2143(1)	47(1)
C(10)	5518(5)	-1530(2)	2233(1)	43(1)
C(11)	4820(5)	-1017(2)	2069(1)	33(1)
C(12)	3075(6)	213(3)	2526(1)	58(2)
C(13)	1430(5)	-1426(3)	1938(1)	43(1)
C(14)	3184(4)	1708(2)	1560(1)	41(1)
C(15)	5117(4)	1839(3)	2095(1)	44(1)
C(16)	2183(5)	1724(3)	2203(1)	64(2)
C(17)	1717(5)	195(3)	1062(1)	43(1)
C(18)	412(6)	-1154(5)	1233(2)	106(3)
C(19)	3137(6)	-1200(3)	944(1)	66(2)
C(20)	6336(4)	1074(2)	454(1)	28(1)
C(21)	7399(4)	1093(2)	274(1)	29(1)
C(22)	8682(4)	826(2)	408(1)	31(1)
C(23)	9000(4)	1253(2)	697(1)	29(1)
C(24)	8149(4)	1236(2)	932(1)	26(1)
C(25)	7515(4)	-101(2)	699(1)	27(1)
C(26)	7213(4)	-794(2)	777(1)	33(1)
C(27)	7881(5)	-1348(3)	638(1)	41(1)
C(28)	8874(5)	-1202(3)	434(1)	45(1)
C(29)	9199(5)	-504(3)	358(1)	40(1)
C(30)	8501(4)	49(2)	489(1)	31(1)
C(31)	7488(4)	1326(3)	-57(1)	39(1)
C(32)	10248(4)	1658(2)	678(1)	38(1)
C(33)	3983(4)	1898(2)	675(1)	38(1)
C(34)	4382(5)	1807(3)	-10(1)	50(1)
C(35)	3664(5)	474(2)	335(1)	48(1)
C(36)	6650(4)	2238(2)	1339(1)	34(1)
C(37)	9535(4)	2381(3)	1348(1)	51(1)
C(38)	8319(5)	1062(3)	1630(1)	48(1)

U(eq) is defined as 1/3 the trace of the Uij tensor.

Table S2-3. Bond lengths (A) and angles (deg) for mb623

Pt(1)-P(2)	2.239(1)	Pt(1)-P(1)	2.243(1)
P(1)-C(6)	1.832(4)	P(1)-C(1)	1.858(4)
P(1)-C(5)	1.869(4)	P(2)-C(25)	1.832(4)
P(2)-C(24)	1.863(4)	P(2)-C(20)	1.867(4)
Si(1)-C(14)	1.853(5)	Si(1)-C(15)	1.862(5)
Si(1)-C(1)	1.871(4)	Si(1)-C(16)	1.878(5)
Si(2)-C(17)	1.856(5)	Si(2)-C(18)	1.865(6)
Si(2)-C(5)	1.866(4)	Si(2)-C(19)	1.879(6)
Si(3)-C(35)	1.861(5)	Si(3)-C(33)	1.866(5)
Si(3)-C(20)	1.886(4)	Si(3)-C(34)	1.887(5)
Si(4)-C(36)	1.866(4)	Si(4)-C(38)	1.868(5)
Si(4)-C(37)	1.876(5)	Si(4)-C(24)	1.887(4)
C(1)-C(2)	1.350(6)	C(2)-C(12)	1.510(6)
C(2)-C(3)	1.536(6)	C(3)-C(11)	1.509(6)
C(3)-C(4)	1.556(6)	C(3)-H(3)	1.0000
C(4)-C(5)	1.344(6)	C(4)-C(13)	1.514(6)
C(6)-C(7)	1.388(6)	C(6)-C(11)	1.392(6)
C(7)-C(8)	1.402(6)	C(7)-H(7)	0.9500
C(8)-C(9)	1.396(7)	C(8)-H(8)	0.9500
C(9)-C(10)	1.397(7)	C(9)-H(9)	0.9500
C(10)-C(11)	1.401(6)	C(10)-H(10)	0.9500
C(12)-H(12A)	0.9800	C(12)-H(12B)	0.9800
C(12)-H(12C)	0.9800	C(13)-H(13A)	0.9800
C(13)-H(13B)	0.9800	C(13)-H(13C)	0.9800
C(14)-H(14A)	0.9800	C(14)-H(14B)	0.9800
C(14)-H(14C)	0.9800	C(15)-H(15A)	0.9800
C(15)-H(15B)	0.9800	C(15)-H(15C)	0.9800
C(16)-H(16A)	0.9800	C(16)-H(16B)	0.9800
C(16)-H(16C)	0.9800	C(17)-H(17A)	0.9800
C(17)-H(17B)	0.9800	C(17)-H(17C)	0.9800
C(18)-H(18A)	0.9800	C(18)-H(18B)	0.9800
C(18)-H(18C)	0.9800	C(19)-H(19A)	0.9800
C(19)-H(19B)	0.9800	C(19)-H(19C)	0.9800
C(20)-C(21)	1.349(5)	C(21)-C(31)	1.508(5)
C(21)-C(22)	1.533(6)	C(22)-C(30)	1.519(6)
C(22)-C(23)	1.528(6)	C(22)-H(22)	1.0000
C(23)-C(24)	1.346(5)	C(23)-C(32)	1.501(6)
C(25)-C(26)	1.387(6)	C(25)-C(30)	1.397(6)
C(26)-C(27)	1.390(6)	C(26)-H(26)	0.9500
C(27)-C(28)	1.385(7)	C(27)-H(27)	0.9500
C(28)-C(29)	1.399(6)	C(28)-H(28)	0.9500
C(29)-C(30)	1.390(6)	C(29)-H(29)	0.9500
C(31)-H(31A)	0.9800	C(31)-H(31B)	0.9800
C(31)-H(31C)	0.9800	C(32)-H(32A)	0.9800
C(32)-H(32B)	0.9800	C(32)-H(32C)	0.9800
C(33)-H(33A)	0.9800	C(33)-H(33B)	0.9800
C(33)-H(33C)	0.9800	C(34)-H(34A)	0.9800
C(34)-H(34B)	0.9800	C(34)-H(34C)	0.9800
C(35)-H(35A)	0.9800	C(35)-H(35B)	0.9800
C(35)-H(35C)	0.9800	C(36)-H(36A)	0.9800
C(36)-H(36B)	0.9800	C(36)-H(36C)	0.9800
C(37)-H(37A)	0.9800	C(37)-H(37B)	0.9800
C(37)-H(37C)	0.9800	C(38)-H(38A)	0.9800
C(38)-H(38B)	0.9800	C(38)-H(38C)	0.9800

P(2)-Pt(1)-P(1)	162.62(4)	C(6)-P(1)-C(1)	97.8(2)
C(6)-P(1)-C(5)	97.7(2)	C(1)-P(1)-C(5)	96.8(2)
C(6)-P(1)-Pt(1)	111.3(2)	C(1)-P(1)-Pt(1)	124.3(1)
C(5)-P(1)-Pt(1)	123.4(1)	C(25)-P(2)-C(24)	98.3(2)
C(25)-P(2)-C(20)	95.7(2)	C(24)-P(2)-C(20)	97.9(2)
C(25)-P(2)-Pt(1)	112.1(1)	C(24)-P(2)-Pt(1)	119.9(1)
C(20)-P(2)-Pt(1)	127.1(1)	C(14)-Si(1)-C(15)	111.8(2)
C(14)-Si(1)-C(1)	108.8(2)	C(15)-Si(1)-C(1)	108.8(2)
C(14)-Si(1)-C(16)	106.0(2)	C(15)-Si(1)-C(16)	110.6(3)
C(1)-Si(1)-C(16)	110.7(2)	C(17)-Si(2)-C(18)	106.1(3)
C(17)-Si(2)-C(5)	109.2(2)	C(18)-Si(2)-C(5)	113.3(2)
C(17)-Si(2)-C(19)	109.8(2)	C(18)-Si(2)-C(19)	110.9(4)

C(5)-Si(2)-C(19)	107.4(2)	C(35)-Si(3)-C(33)	111.7(2)
C(35)-Si(3)-C(20)	107.9(2)	C(33)-Si(3)-C(20)	108.3(2)
C(35)-Si(3)-C(34)	107.6(2)	C(33)-Si(3)-C(34)	106.9(2)
C(20)-Si(3)-C(34)	114.6(2)	C(36)-Si(4)-C(38)	111.2(2)
C(36)-Si(4)-C(37)	106.3(2)	C(38)-Si(4)-C(37)	108.8(2)
C(36)-Si(4)-C(24)	107.2(2)	C(38)-Si(4)-C(24)	109.0(2)
C(37)-Si(4)-C(24)	114.3(2)	C(2)-C(1)-P(1)	112.1(3)
C(2)-C(1)-Si(1)	126.7(3)	P(1)-C(1)-Si(1)	121.0(2)
C(1)-C(2)-C(12)	127.8(4)	C(1)-C(2)-C(3)	118.4(4)
C(12)-C(2)-C(3)	113.8(4)	C(11)-C(3)-C(2)	108.9(4)
C(11)-C(3)-C(4)	108.9(3)	C(2)-C(3)-C(4)	107.8(4)
C(11)-C(3)-H(3)	110.4	C(2)-C(3)-H(3)	110.4
C(4)-C(3)-H(3)	110.4	C(5)-C(4)-C(13)	127.4(4)
C(5)-C(4)-C(3)	118.8(4)	C(13)-C(4)-C(3)	113.7(4)
C(4)-C(5)-Si(2)	130.6(3)	C(4)-C(5)-P(1)	111.6(3)
Si(2)-C(5)-P(1)	117.8(2)	C(7)-C(6)-C(11)	120.4(4)
C(7)-C(6)-P(1)	125.5(3)	C(11)-C(6)-P(1)	114.1(3)
C(6)-C(7)-C(8)	120.3(4)	C(6)-C(7)-H(7)	119.9
C(8)-C(7)-H(7)	119.9	C(9)-C(8)-C(7)	118.8(5)
C(9)-C(8)-H(8)	120.6	C(7)-C(8)-H(8)	120.6
C(8)-C(9)-C(10)	121.4(5)	C(8)-C(9)-H(9)	119.3
C(10)-C(9)-H(9)	119.3	C(9)-C(10)-C(11)	118.8(5)
C(9)-C(10)-H(10)	120.6	C(11)-C(10)-H(10)	120.6
C(6)-C(11)-C(10)	120.3(5)	C(6)-C(11)-C(3)	115.5(4)
C(10)-C(11)-C(3)	124.3(4)	C(2)-C(12)-H(12A)	109.5
C(2)-C(12)-H(12B)	109.5	H(12A)-C(12)-H(12B)	109.5
C(2)-C(12)-H(12C)	109.5	H(12A)-C(12)-H(12C)	109.5
H(12B)-C(12)-H(12C)	109.5	C(4)-C(13)-H(13A)	109.5
C(4)-C(13)-H(13B)	109.5	H(13A)-C(13)-H(13B)	109.5
C(4)-C(13)-H(13C)	109.5	H(13A)-C(13)-H(13C)	109.5
H(13B)-C(13)-H(13C)	109.5	Si(1)-C(14)-H(14A)	109.5
Si(1)-C(14)-H(14B)	109.5	H(14A)-C(14)-H(14B)	109.5
Si(1)-C(14)-H(14C)	109.5	H(14A)-C(14)-H(14C)	109.5
H(14B)-C(14)-H(14C)	109.5	Si(1)-C(15)-H(15A)	109.5
Si(1)-C(15)-H(15B)	109.5	H(15A)-C(15)-H(15B)	109.5
Si(1)-C(15)-H(15C)	109.5	H(15A)-C(15)-H(15C)	109.5
H(15B)-C(15)-H(15C)	109.5	Si(1)-C(16)-H(16A)	109.5
Si(1)-C(16)-H(16B)	109.5	H(16A)-C(16)-H(16B)	109.5
Si(1)-C(16)-H(16C)	109.5	H(16A)-C(16)-H(16C)	109.5
H(16B)-C(16)-H(16C)	109.5	Si(2)-C(17)-H(17A)	109.5
Si(2)-C(17)-H(17B)	109.5	H(17A)-C(17)-H(17B)	109.5
Si(2)-C(17)-H(17C)	109.5	H(17A)-C(17)-H(17C)	109.5
H(17B)-C(17)-H(17C)	109.5	Si(2)-C(18)-H(18A)	109.5
Si(2)-C(18)-H(18B)	109.5	H(18A)-C(18)-H(18B)	109.5
Si(2)-C(18)-H(18C)	109.5	H(18A)-C(18)-H(18C)	109.5
H(18B)-C(18)-H(18C)	109.5	Si(2)-C(19)-H(19A)	109.5
Si(2)-C(19)-H(19B)	109.5	H(19A)-C(19)-H(19B)	109.5
Si(2)-C(19)-H(19C)	109.5	H(19A)-C(19)-H(19C)	109.5
H(19B)-C(19)-H(19C)	109.5	C(21)-C(20)-P(2)	112.0(3)
C(21)-C(20)-Si(3)	130.0(3)	P(2)-C(20)-Si(3)	117.9(2)
C(20)-C(21)-C(31)	127.7(4)	C(20)-C(21)-C(22)	118.3(4)
C(31)-C(21)-C(22)	114.0(3)	C(30)-C(22)-C(23)	110.2(3)
C(30)-C(22)-C(21)	107.4(3)	C(23)-C(22)-C(21)	109.1(3)
C(30)-C(22)-H(22)	110.1	C(23)-C(22)-H(22)	110.1
C(21)-C(22)-H(22)	110.1	C(24)-C(23)-C(32)	128.0(4)
C(24)-C(23)-C(22)	118.0(4)	C(32)-C(23)-C(22)	114.0(4)
C(23)-C(24)-P(2)	112.5(3)	C(23)-C(24)-Si(4)	129.6(3)
P(2)-C(24)-Si(4)	117.8(2)	C(26)-C(25)-C(30)	120.9(4)
C(26)-C(25)-P(2)	125.8(3)	C(30)-C(25)-P(2)	113.3(3)
C(25)-C(26)-C(27)	119.5(4)	C(25)-C(26)-H(26)	120.3
C(27)-C(26)-H(26)	120.3	C(28)-C(27)-C(26)	119.8(5)
C(28)-C(27)-H(27)	120.1	C(26)-C(27)-H(27)	120.1
C(27)-C(28)-C(29)	121.0(4)	C(27)-C(28)-H(28)	119.5
C(29)-C(28)-H(28)	119.5	C(30)-C(29)-C(28)	119.1(5)
C(30)-C(29)-H(29)	120.5	C(28)-C(29)-H(29)	120.5
C(29)-C(30)-C(25)	119.6(4)	C(29)-C(30)-C(22)	124.5(4)
C(25)-C(30)-C(22)	115.8(4)	C(21)-C(31)-H(31A)	109.5
C(21)-C(31)-H(31B)	109.5	H(31A)-C(31)-H(31B)	109.5
C(21)-C(31)-H(31C)	109.5	H(31A)-C(31)-H(31C)	109.5
H(31B)-C(31)-H(31C)	109.5	C(23)-C(32)-H(32A)	109.5
C(23)-C(32)-H(32B)	109.5	H(32A)-C(32)-H(32B)	109.5

C(23)-C(32)-H(32C)	109.5	H(32A)-C(32)-H(32C)	109.5
H(32B)-C(32)-H(32C)	109.5	Si(3)-C(33)-H(33A)	109.5
Si(3)-C(33)-H(33B)	109.5	H(33A)-C(33)-H(33B)	109.5
Si(3)-C(33)-H(33C)	109.5	H(33A)-C(33)-H(33C)	109.5
H(33B)-C(33)-H(33C)	109.5	Si(3)-C(34)-H(34A)	109.5
Si(3)-C(34)-H(34B)	109.5	H(34A)-C(34)-H(34B)	109.5
Si(3)-C(34)-H(34C)	109.5	H(34A)-C(34)-H(34C)	109.5
H(34B)-C(34)-H(34C)	109.5	Si(3)-C(35)-H(35A)	109.5
Si(3)-C(35)-H(35B)	109.5	H(35A)-C(35)-H(35B)	109.5
Si(3)-C(35)-H(35C)	109.5	H(35A)-C(35)-H(35C)	109.5
H(35B)-C(35)-H(35C)	109.5	Si(4)-C(36)-H(36A)	109.5
Si(4)-C(36)-H(36B)	109.5	H(36A)-C(36)-H(36B)	109.5
Si(4)-C(36)-H(36C)	109.5	H(36A)-C(36)-H(36C)	109.5
H(36B)-C(36)-H(36C)	109.5	Si(4)-C(37)-H(37A)	109.5
Si(4)-C(37)-H(37B)	109.5	H(37A)-C(37)-H(37B)	109.5
Si(4)-C(37)-H(37C)	109.5	H(37A)-C(37)-H(37C)	109.5
H(37B)-C(37)-H(37C)	109.5	Si(4)-C(38)-H(38A)	109.5
Si(4)-C(38)-H(38B)	109.5	H(38A)-C(38)-H(38B)	109.5
Si(4)-C(38)-H(38C)	109.5	H(38A)-C(38)-H(38C)	109.5
H(38B)-C(38)-H(38C)	109.5		

Table S2-4. Anisotropic displacement parameters (A^2 x 10^3) for mb623

atom	U11	U22	U33	U23	U13	U12
Pt(1)	24(1)	31(1)	21(1)	3(1)	3(1)	-1(1)
P(1)	28(1)	28(1)	20(1)	2(1)	4(1)	-1(1)
P(2)	26(1)	28(1)	19(1)	2(1)	4(1)	0(1)
Si(1)	35(1)	31(1)	30(1)	-3(1)	7(1)	0(1)
Si(2)	43(1)	38(1)	31(1)	6(1)	-10(1)	-11(1)
Si(3)	29(1)	32(1)	28(1)	0(1)	-2(1)	1(1)
Si(4)	28(1)	33(1)	28(1)	-3(1)	-1(1)	0(1)
C(1)	35(2)	32(2)	22(2)	-4(2)	4(2)	-4(2)
C(2)	43(3)	42(3)	27(3)	-6(2)	5(2)	-7(2)
C(3)	50(3)	32(3)	19(2)	2(2)	6(2)	-8(2)
C(4)	43(3)	30(3)	25(3)	1(2)	4(2)	-5(2)
C(5)	30(2)	29(2)	24(2)	2(2)	1(2)	-3(2)
C(6)	40(3)	26(2)	22(2)	-2(2)	-4(2)	-3(2)
C(7)	36(3)	34(3)	30(3)	-4(2)	-2(2)	-4(2)
C(8)	44(3)	38(3)	47(3)	-5(2)	-18(2)	5(2)
C(9)	64(4)	33(3)	43(3)	-4(2)	-26(3)	7(3)
C(10)	72(4)	32(3)	25(3)	3(2)	-13(2)	-6(3)
C(11)	49(3)	29(2)	21(2)	0(2)	-10(2)	-4(2)
C(12)	99(5)	51(3)	25(3)	-6(2)	18(3)	-11(3)
C(13)	50(3)	41(3)	40(3)	7(2)	5(2)	-15(2)
C(14)	42(3)	38(3)	45(3)	-2(2)	-5(2)	9(2)
C(15)	51(3)	39(3)	43(3)	1(2)	-13(2)	1(2)
C(16)	65(4)	52(4)	74(4)	-5(3)	34(3)	6(3)
C(17)	43(3)	51(3)	36(3)	9(2)	-11(2)	5(3)
C(18)	86(5)	152(8)	80(5)	60(5)	-49(4)	-72(5)
C(19)	104(5)	54(4)	40(4)	-6(3)	-17(3)	19(4)
C(20)	31(2)	33(3)	19(2)	0(2)	-1(2)	1(2)
C(21)	33(2)	28(2)	25(2)	2(2)	4(2)	2(2)
C(22)	26(2)	40(3)	27(3)	4(2)	7(2)	3(2)
C(23)	24(2)	31(2)	31(3)	1(2)	1(2)	3(2)
C(24)	23(2)	28(2)	27(2)	1(2)	-1(2)	0(2)
C(25)	31(2)	30(2)	20(2)	-2(2)	-3(2)	4(2)
C(26)	41(3)	31(3)	26(3)	0(2)	0(2)	-1(2)
C(27)	59(3)	33(3)	31(3)	2(2)	-10(2)	4(2)
C(28)	58(3)	39(3)	37(3)	-9(2)	-3(2)	22(3)
C(29)	47(3)	45(3)	27(3)	-1(2)	5(2)	13(3)
C(30)	31(2)	36(3)	25(2)	-1(2)	1(2)	5(2)
C(31)	43(3)	47(3)	26(3)	10(2)	7(2)	3(2)
C(32)	31(2)	42(3)	40(3)	5(2)	9(2)	-5(2)
C(33)	31(3)	42(3)	43(3)	-5(2)	-2(2)	0(2)
C(34)	45(3)	66(4)	39(3)	13(3)	-9(2)	13(3)
C(35)	43(3)	42(3)	60(4)	-12(3)	-1(2)	-5(3)
C(36)	29(2)	37(3)	37(3)	-5(2)	1(2)	0(2)
C(37)	37(3)	59(4)	56(4)	-18(3)	0(2)	-5(3)
C(38)	58(3)	50(3)	35(3)	1(2)	-8(2)	9(3)

The anisotropic displacement factor exponent takes the form
2 pi^2 [h^2a*^2U(11) +...+ 2hka*b*U(12)]

Table S2-5. Hydrogen Coordinates (A x 10^4) and equivalent isotropic displacement parameters (A^2 x 10^3) for mb623

atom	x	y	z	U(eq)
H(3)	3136	-1053	2331	41
H(7)	7016	-591	1561	40
H(8)	8232	-1434	1839	51
H(9)	7264	-2029.0001	2252	56
H(10)	5136	-1769	2402	52
H(12A)	3171	726	2552	87
H(12B)	3646	-33	2671	87
H(12C)	2175	77	2566	87
H(13A)	981	-1553.0001	1747	65
H(13B)	833	-1174	2074	65
H(13C)	1740	-1857	2039	65
H(14A)	3143	2227	1550	62
H(14B)	2344	1509	1500	62
H(14C)	3854	1536	1419	62
H(15A)	5198	1770	2317	67
H(15B)	5111	2347	2048	67
H(15C)	5851	1614	1991	67
H(16A)	1518	1354	2204	95
H(16B)	1817	2162	2119	95
H(16C)	2485	1808	2413	95
H(17A)	1182	458	1209	65
H(17B)	1263	163	864	65
H(17C)	2543	441	1033	65
H(18A)	526	-1650.0001	1294	159
H(18B)	-6.0000	-1135	1030	159
H(18C)	-132	-910	1384	159
H(19A)	3960	-945	928	99
H(19B)	2737	-1232	740	99
H(19C)	3292	-1678	1024	99
H(22)	9390	880	253	37
H(26)	6556	-889	924	39
H(27)	7656	-1825	684	49
H(28)	9342	-1582	344	54
H(29)	9888	-409	220	48
H(31A)	6641	1497	-126	58
H(31B)	7755	924	-185	58
H(31C)	8126	1708	-75	58
H(32A)	10460	1854	880	56
H(32B)	10156	2045	529	56
H(32C)	10943	1339	611	56
H(33A)	4000	1641	871	58
H(33B)	3092	2039	628	58
H(33C)	4529	2320	691	58
H(34A)	4995	2203	-20	75
H(34B)	3495	1990	-22	75
H(34C)	4538	1486	-183	75
H(35A)	3993	189	164	72
H(35B)	2749	584	301	72
H(35C)	3755	206	527	72
H(36A)	6609	2583	1171	52
H(36B)	6623	2488	1537	52
H(36C)	5910	1914	1324	52
H(37A)	10365	2130	1357	76
H(37B)	9417	2658	1537	76
H(37C)	9529	2700	1170	76
H(38A)	7577	738	1622	72
H(38B)	8327	1310	1828	72
H(38C)	9122	791	1606	72